THE

AMERICAN JOURNAL

OF THE MEDICAL SCIENCES

FOR APRIL 1863.

CONTRIBUTORS TO THIS VOLUME.

GEORGE S. D. ANDERSON, M. D., *of Rapides, Louisiana.*
JOHN ASHHURST, Jr., M. D., *of Philadelphia, Acting Assistant Surgeon U. S. A.*
W. F. ATLEE, M. D., *of Philadelphia.*
J. H. BILL, M. D., *Assistant Surgeon U. S. A.*
JAMES BLAKE, M. D., *of San Francisco, California.*
HENRY I. BOWDITCH, M. D., *Jackson, Professor of Clinical Medicine in Medical Department of Harvard University.*
RUFUS KING BROWNE, M. D., *Surgeon-in-Chief U. S. Gen. Hospital, N. Orleans.*
A. E. CAROTHERS, M. D., *Acting Assistant Surgeon U. S. A.*
JOSEPH CARSON, M. D., *Professor of Materia Medica in the University of Penna.*
D. FRANCIS CONDIE, M. D., *of Philadelphia.*
JAMES CORSE, M. D., *of Philadelphia.*
REDFERN DAVIES, Esq., M. R. C. S., *Acting Assistant Surgeon U. S. A.*
GREENSVILLE DOWELL, M. D., *of Columbia, Texas.*
PLINY EARLE, M. D., *of Leicester, Mass.*
G. J. FISHER, M. D., *of Sing Sing, N. York.*
AUSTIN FLINT, M. D., *Professor of the Principles and Practice of Medicine in the Bellevue Hospital Medical College, and in the Long Island College Hospital.*
JAMES N. FRASER, M. D., *of St. John's, Newfoundland.*
DAVID GILBERT, M. D., *of Philadelphia.*
JOHN H. GRISCOM, M. D., *of New York.*
WM. A. HAMMOND, M. D., *Surgeon General U. S. A.*
EDWARD HARTSHORNE, M. D., *one of the Surgeons to the Pennsylvania Hospital.*
ISAAC HAYS, M. D., *of Philadelphia.*
WORTHINGTON HOOKER, M. D., *Professor of the Theory and Practice of Medicine in Medical Institution of Yale College.*
WILLIAM HUNT, M. D., *one of the Surgeons to Wills Hospital.*
CHRISTOPHER JOHNSTON, M. D., *of Baltimore, Maryland.*
D. LEASURE, M. D., *of Pennsylvania.*
JAMES J. LEVICK, M. D., *one of the Physicians to the Pennsylvania Hospital.*
J. AITKEN MEIGS, M. D., *of Philadelphia.*
HENRY MILLER, M. D., *of Louisville, Ky.*
JAMES L. ORD, M. D., *of California.*
W. T. OWEN, M. D., *of Louisville, Kentucky.*
E. R. PEASLEE, M. D., *Professor of Anatomy, &c.*
CHARLES H. PILE, *Assistant Surgeon U. S. N.*
JOS. G. RICHARDSON, M. D., *Resident Physician to the Pennsylvania Hospital.*
J. H. SALISBURY, M. D., *of Lancaster, Ohio.*
J. LAWRENCE SMITH, M. D., *Professor of Chemistry in Medical Department of University of Louisville.*
ALFRED STILLÉ, M. D., *of Philadelphia.*
WM. T. TAYLOR, M. D., *of Philadelphia.*
D. G. THOMAS, M. D., *of Utica, N. York.*
S. P. TURNER, M. D., *one of the Physicians to the Howard Hospital and Infirmary for Incurables.*
PHILIP S. WALES, M. D., *Surgeon U. S. N.*
A. G. WALTER, M. D., *of Pittsburg, Pennsylvania.*

TO READERS AND CORRESPONDENTS.

The following works have been received:—

Researches on the Nature, Pathology, and Treatment of Emphysema of the Lungs, and its Relations with other Diseases of the Chest. By A. T. H. Waters, M. D., M. R. C. P., &c. &c. London: John Churchill, 1862. (From the Author.)

Obstetrics: The Science and the Art. By Charles D. Meigs, M. D., late Professor of Midwifery and the Diseases of Women and Children in the Jefferson Medical College at Philadelphia. Fourth edition, revised, with 129 illustrations. Blanchard & Lea, 1863. (From the Publishers.)

On Diseases of the Skin. By Erasmus Wilson, F. R. S. Fifth American, from the fifth and revised London edition, with plates and illustrations on wood. Philadelphia, 1863. (From the Publishers.)

Chemistry. By William Thomas Brande, D. C. L., F. R. S. L. & E., of her Majesty's Mint, &c. &c., and Alfred Swaine Taylor, M. D., F. R. S., F. R. C. P., Lond., Prof. Chem. and Med. Jurisp. in Guy's Hospital. Philadelphia: Blanchard & Lea, 1863. (From the Publishers.)

(We shall notice this valuable work in our next number.)

The Principles and Practice of Surgery, embracing Minor and Operative Surgery, with a Bibliographical Index of American Surgical Writers from the year 1783 to 1860. Arranged for the use of Students, and illustrated by 400 wood-cuts, and nearly 1000 engravings on steel. By Henry R. Smith, M. D., Professor of Surgery in the University of Pennsylvania. In two volumes. Philadelphia: J. B. Lippincott & Co., 1863. (From the Publishers.)

The Principles and Practice of Obstetrics. By Gunning S. Bedford, M. D., Professor of Obstetrics, &c., in University of New York. Third edition, carefully revised and enlarged. New York: Wm. Wood & Co., 1863. (From the Author.)

First Outlines of a Dictionary of the Solubilities of Chemical Substances. By Frank H. Storer. One volume, in three parts: Part I. Cambridge: Sever & Francis, 1863. (From the Author.)

Bulletin of the New York Academy of Medicine. Vol. I., Nos. 1 to 19 inclusive. Vol. II., Nos. 1 to 4. New York: Baillière Brothers, 1862 and 1863.

Proceedings of the Academy of Natural Sciences of Philadelphia. October, November, December, 1862.

Transactions of the Seventeenth Annual Meeting of the Ohio State Medical Society, held at Ohio White Sulphur Springs, June 17 and 18, 1862. Cincinnati, 1862.

Report of the Surgeon General of the United States Army. (From the Author.)

Ninth Report to the General Assembly of Rhode Island, relating to the Registry and Returns of Births, Marriages, and Deaths in the State, for the year ending December 31, 1861. Prepared under the direction of JOHN R. BARTLETT, Sec. State. Providence, 1862. (From C. W. PARSONS, M. D.)

Eighth Annual Report of the Board of Trustees and Officers of the Northern Ohio Lunatic Asylum to the Governor of the State of Ohio, for the year 1862. Columbus, 1863.

Eighth Annual Report of the Board of Trustees and Officers of the Southern Ohio Lunatic Asylum to the Governor of the State of Ohio, for the year 1862. Columbus, 1863.

Biennial Report of the Board of Trustees of the Michigan Asylum for the Insane, for the years 1861–62. Lansing, 1862.

Third and Fourth Reports concerning the Aid and Comfort given by the Sanitary Commission to Sick Soldiers passing through Washington. By FRED. N. KNAPP, Special Relief Agent.

Reports of the Operations of the Inspectors and Relief Agents of the Sanitary Commission after the battle of Fredericksburg, December 13, 1862. By J. H. DOUGLAS, M. D., Assistant Secretary of Sanitary Commission, and C. W. BRINK, M. D., Inspector of Sanitary Commission.

Report of LEWIS H. STEINER, M. D., Inspector of the Sanitary Commission, containing a Diary kept during the rebel occupation of Frederick, Md., and an account of the operations of the United States Sanitary Commission during the campaign in Maryland, September, 1862. Published by permission of the Sanitary Commission. New York: A. X. F. Randolph, 1862.

Twenty-fourth Annual Report of the Board of Trustees and Officers of the Central Ohio Lunatic Asylum to the Governor of the State of Ohio, for the year 1862. Columbus, 1863.

Report of the Pennsylvania Hospital for the Insane, for the year 1862. By THOMAS S. KIRKBRIDE, M. D., Physician and Superintendent. (From the Author.)

Annual Report of the Board of Directors and Officers of Longview Asylum, to the Governor of the State of Ohio, for the year 1862. Columbus, Ohio, 1863.

Seventh Annual Report of the Children's Hospital, Philadelphia. Philadelphia, 1863.

Department of Special Inspection of the General Hospitals of the Army. First Report of the Commission. By HENRY G. CLARK, Inspector in Chief. Washington, November 18, 1862.

Operations of the Sanitary Commission, at Perryville, Ky.

Consumption in New England: or, Locality one of its Chief Causes. An Address delivered before the Massachusetts Medical Society. By HENRY I. BOWDITCH, M. D. Boston, 1862. (From the Author.)

Address delivered before the State Medical Society of Indiana, in Indianapolis, November 18, 1862. By THEOPHILUS PARVIN, M. D., President of the Society. Indianapolis, 1862. (From the Author.)

Valedictory Address to the Graduating Class of the Medical Department of the University of Maryland. By RICHARD MCSHERRY, M. D., Lecturer on Materia Medica and Therapeutics. Baltimore, 1863.

Address before the Philadelphia County Medical Society. Delivered Feb-

ruary 11, 1863. By ALFRED STILLÉ, M. D., at the close of his official term as President. Philadelphia, 1863. (From the Author.)

The Annual Address to the Candidates for the Degree of Doctor of Medicine in the Medical Institution of Yale College, Jan. 15, 1863. By HENRY BRONSON, M. D. New Haven, 1863. (From the Author.)

Hints on the Treatment of Strangulated Hernia: The Properties of Opium as Antiphlogistics Anatomically and Physiologically Explained. By JOHN O'REILLY, M. D. New York, 1863.

Studies of Abortion. By H. R. STORER, M. D., of Boston. No. 1.

Catalogue of the Officers and Students of the University of Michigan for 1863. Ann Arbor, 1863.

The following Journals have been received in exchange:—

Gazette Médicale de Paris. Redacteur en chef, JULES GUÉRIN. Nos. 44, 45, 46, 47, 48, 49, 50, 51, 52. 1862. No. 2. 1863.

Gazette Hebdomadaire de Médecine et de Chirurgie. Redacteur en chef, A. DECHAMBRE. Nos. 44, 45, 46, 47, 48, 49, 50, 51, 52. 1862. Nos. 1, 2, 3. 1863.

Journal de Médecine de Bordeaux. Redacteur en chef, M. COSTES. Nov., 1862.

Revue de Thérapeutique Médico-Chirurgicale. Par A. MARTIN-LAUZER, M. D. Nos. 1, 2, 3, 4, 5. 1863.

The Medical Critic and Psychological Journal. Edited by FORBES WINSLOW, M. D. January, 1863.

The British and Foreign Medico-Chirurgical Review. January, 1863.

Edinburgh Medical Journal. January, February, 1863.

Medical Times and Gazette. January, February, March, 1863.

British Medical Journal. December, 1862. January, 1863.

The Half Yearly Abstract of the Medical Sciences. Edited by W. H. RANKING, M. D., and C. B. RADCLIFFE, M. D. Vol. XXXVI.

The Retrospect of Medicine. Edited by W. BRAITHWAITE, M. D., and JAS. BRAITHWAITE, M. D. Vol. XLVI.

The London Medical Review. December, 1862. January, February, 1863.

Glasgow Medical Journal. January, 1863.

Edinburgh Veterinary Review. December, 1862. January, 1863.

Dublin Quarterly Journal of Medical Science. February, 1863.

British American Journal. Edited by ARCHIBALD HALL, M. D. Dec., 1862.

American Medical Times. January, February, March, 1863.

The Boston Medical and Surgical Journal. Edited by SAMUEL L. ABBOT, M. D. January, February, March, 1863.

The American Journal of Insanity. Edited by the Medical Officers of the New York State Lunatic Asylum. January, 1863.

The Cincinnati Lancet and Observer. Edited by E. B. STEVENS, M. D., and J. A. MURPHY, M. D. January, February, March, 1863.

Ohio Medical and Surgical Journal. Edited by the Professors of Starling Medical College. January, 1863.

American Medical Monthly. Edited by J. H. DOUGLAS, M. D. November, December, 1862.

The Medical and Surgical Reporter. Edited by S. W. BUTLER, M. D., and R. J. LEVIS, M. D. November, December, 1862.

The American Journal of Ophthalmology. Edited by JULIUS HOMBERGER, M. D. November, 1862. January, 1863.

Buffalo Medical and Surgical Journal. Edited by JULIUS F. MINER, M. D. November, December, 1862. January, February, March, 1863.

The Chicago Medical Examiner. Edited by N. S. DAVIS, M. D. Nov., 1862.

The American Journal of Science and Art. Edited by Profs. B. SILLIMAN, B. SILLIMAN, Jr., and JAS. D. DANA. March, 1863.

The Cincinnati Medical and Surgical News. Edited by A. H. BAKER, M. D., and J. C. BECK, M. D. January, 1863.

The Pacific Medical and Surgical Journal. Edited by V. J. FOURGEAUD, M. D. January, February, 1863.

American Journal of Pharmacy. Edited by WM. PROCTER, Jr., Professor of Pharmacy in the Philadelphia College of Pharmacy. January, March, 1863.

American Druggists' Circular. January, February, March, 1863.

Communications intended for publication, and Books for Review, should be sent, *free of expense*, directed to ISAAC HAYS, M. D., Editor of the American Journal of the Medical Sciences, care of Messrs. Blanchard & Lea, Philadelphia. Parcels directed as above, and (carriage paid) under cover, to Messrs. Trübner & Co., Booksellers, No. 60 Paternoster Row, *London, E. C.*; or M. Hector Bossange, Lib. quai Voltaire, No. 11, *Paris*, will reach us safely and without delay. We particularly request the attention of our foreign correspondents to the above, as we are often subjected to unnecessary expense for postage and carriage.

Private communications to the Editor may be addressed to his residence, 1525 Locust Street.

ALL REMITTANCES OF MONEY, and letters on the *business* of the Journal, should be addressed *exclusively* to the publishers, Messrs. Blanchard & Lea.

☞ The advertisement-sheet belongs to the business department of the Journal, and all communications for it should be made to the publishers.

To secure insertion, all advertisements should be received by the 20th of the previous month.

CONTENTS

OF THE

AMERICAN JOURNAL

OF THE

MEDICAL SCIENCES.

NO. XC. NEW SERIES.

APRIL, 1863.

ORIGINAL COMMUNICATIONS.

MEMOIRS AND CASES.

ART. PAGE

I. Experiments connected with the discovery of Cholesterine and Seroline, as Secretions, in Health, of the Salivary, Tear, Mammary, and Sudorific Glands; of the Testis and Ovary; of the Kidneys in Hepatic Derangements; of Mucous Membranes when congested and inflamed; and in the Fluid of Ascites and that of Spina Bifida. By J. H. Salisbury, M. D. (With two plates containing eighteen figures.) 289

II. Clinical Report on Hydro-Peritoneum, based on an Analysis of Forty-six Cases. By Austin Flint, M. D., Professor of the Principles and Practice of Medicine in the Bellevue Hospital Medical College, N. Y., and in the Long Island College Hospital. 306

III. On Gold Dust and Iron Filings, as an Antidote for Corrosive Sublimate. By Christopher Johnston, M. D., Baltimore, Md. 339

IV. Surgical Cases, Illustrating some Practical Points. By John Ashhurst, Jr., M. D., of Philadelphia. 342

V. On Compound Comminuted Fracture of the Femur from Minie Balls. By A. E. Carothers, M. D., of Newburg, Cumberland County, Pa., and formerly Act. Asst. Surgeon U. S. Army. 350

VI. A Case of Double Ovariotomy. Patient saved by daily Injections into the Peritoneal Cavity for eight weeks. By E. R. Peaslee, M. D., LL. D., Professor of Anatomy, &c. 355

VII. Analysis of Ninety-three Cases of Labour which came under the care of the Author. By James N. Fraser, M. D., L. R. C. S., Edinburgh, of St. John's, Newfoundland. (Communicated to the "Boston Society for Medical Improvement.") 363

VIII. On Silver Wire Ligatures. Read before the Brodie Med.-Chir. Society, Frederick City, Md., Dec. 1862. By Redfern Davies, M. R. C. S., of Birmingham, England, now Acting Assistant Surgeon U. S. A. . . 373

IX. Ovarian Dropsy treated by Iodine Injections. By D. G. Thomas, M. D., of Utica, N. Y. 376

ART. PAGE

X. Gunshot Wound of Chest and Abdomen. By Philip S. Wales, M. D., Surgeon U. S. N. 380

XI. On the Use of Antimonii et Potassæ Tartras and Oleum Tiglii in establishing Adhesive Inflammation over Varicose Veins. By S. P. Turner, M. D., one of the Physicians to the Howard Hospital and Infirmary for Incurables. 382

XII. Luxation of the Head of the Fibula. By Jos. G. Richardson, M. D., Resident Physician to the Pennsylvania Hospital. 385

XIII. Formula for a Solution of Bromine. Proposed by J. Lawrence Smith, M. D., Professor of Chemistry in the Medical Department of the University of Louisville. 385

REVIEWS.

XIV. The Renewal of Life; Clinical Lectures Illustrative of the Restorative System of Medicine, given at the St. Mary's Hospital. By Thomas K. Chambers, M. D., Fellow of the College of Physicians; Physician to St. Mary's Hospital; Lecturer on the Practice of Medicine, and Clinical Lecturer at St. Mary's Medical School. London: John Churchill, New Burlington Street, 1862. 8vo. pp. 430. 387

XV. Medico-Chirurgical Transactions. Published by the Royal Medical and Chirurgical Society of London. Vol. XLV. (2d Series, Vol. the twenty-seventh.) London, 1862. 8vo. pp. 497. 394

XVI. Clinical Medicine. Observations Recorded at the Bedside, with Commentaries. By W. T. Gairdner, Physician to the Royal Infirmary of Edinburgh, and Lecturer on the Practice of Medicine. Edinburgh: Edmonson & Douglas, 1862. 8vo. pp. 741. 403

XVII. A System of Surgery, Theoretical and Practical, in Treatises by various Authors. Edited by T. Holmes, M. A., Cantab., &c. &c. In four vols. Vol. III. London: Parker, Son & Brown, 1862. 8vo. pp. 916. 408

BIBLIOGRAPHICAL NOTICES.

XVIII. Obstetrics: The Science and the Art. By Charles D. Meigs, M. D., etc. etc. Fourth Edition, revised. With one hundred and twenty-nine illustrations. 8vo. pp. 730. Philadelphia, 1863. Blanchard & Lea. 421

XIX. Bulletin of the New York Academy of Medicine, from January, 1860, to October, 1862. Instituted 1847. Vol. I., 8vo. pp. 588, exclusive of an Appendix of 6 pages. Printed for the Academy, New York, 1862. . 423

XX. Registration Reports to the Legislature of Vermont, comprising the Registry and Returns of Births, Marriages, and Deaths, in the State, for the years 1857, 1858, 1859, respectively. Prepared under the Direction of Benjamin W. Dean, Secretary of State. 8vo. pp. 118, 116, 119. . 424

XXI. The Principles and Practice of Obstetrics. By Gunning S. Bedford, A. M., M. D., Professor of Obstetrics, the Diseases of Women and Children, and Clinical Obstetrics in the University of New York, etc. etc. Third edition, carefully revised and enlarged. New York, 1863. 8vo. pp. 743. William Wood & Co. 430

XXII. First Outlines of a Dictionary of the Solubility of Chemical Substances. By Frank H. Storer. Part I. Cambridge, Mass., Sever & Francis. 8vo. pp. 232. 430

ART. PAGE

XXIII. Reports of Institutions for the Insane in the British American Provinces:—
1. Of the Provincial Lunatic Asylum at Toronto, Canada West, for the years 1853 to 1861, inclusive.
2. Of the Provincial Lunatic Asylum of New Brunswick, at St. John, for the years 1858 to 1861, inclusive.
3. Of the Provincial Hospital for the Insane, near Halifax, Nova Scotia, for the years 1858, 1860, and 1861. 432

XXIV. On Diseases of the Skin. By Erasmus Wilson, F.R.S. Fifth American, from the fifth and revised London edition. With plates and illustrations on wood. Philadelphia: Blanchard & Lea, 1863. 8vo. pp. 694. 441

XXV. Annuaire de Thérapeutique, de Matière Médicale, de Pharmacie et de Toxicologie pour 1862, &c. Par A. Bouchardat, Prof. d'Hygiène de la Faculté de Médecine de Paris, &c. 22 Année: Paris. 443

XXVI. The Use and Abuse of Tobacco. By John Lizars, late Professor of Surgery to the Royal College of Surgery, etc. etc. From the eighth Edinburgh edition. 12mo. pp. 138. Philadelphia: Lindsay & Blakiston, 1859. 457

QUARTERLY SUMMARY

OF THE

IMPROVEMENTS AND DISCOVERIES IN THE MEDICAL SCIENCES.

FOREIGN INTELLIGENCE.

Anatomy and Physiology.

PAGE

1. Spontaneous Generation. By Joly and Musset, and Schröder. 459
2. Researches on the Physiology and Pathology of the Cerebellum. By MM. Leven and Ollivier. 459
3. The Specifically-Acting Principles of the Natural and Artificial Pancreatic Juice. By Alex. Danilewsky. 460
4. Action of Electricity in the Metamorphosis of Organic Substances. By Herr Van Deen. . 460
5. Effects of the Preparations of Iron on the Tissue-change. By Dr. Pakrowsky. 461
6. Experiments on the Influence of Ozonized Air upon Animals. By Dr. W. W. Ireland. . . 462

Materia Medica and Pharmacy.

7. Albuminate of Iron and Soda as a Therapeutic Agent. By M. Angelico Fabri. 462
8. Arsenite of Cafeine and Tanno-Arsenic Acid used as Antiperiodics. By M. Gastinel. . . 463
9. Action of Digitalis. By Dr. Fuller. 463
10. Internal Exhibition of Atropia and of Strychnia. By Dr. Alexander Flemming. 464
11. Recently introduced Preparations of Iron. By Mr. Harry Napier Draper. 466
12. Is Alcohol Food? By Dr. Thomas Inman. 467

Medical Pathology and Therapeutics, and Practical Medicine.

PAGE

13. Diseases depending on Morbific Fermentation, and their Treatment. By Prof. G. Polli. . 467
14. The Fermentative Theory of Disease. By M. Trousseau. . 471
15. A Disease like Measles produced by an Unusual Cause. By Dr. Henry Kennedy. . . 474
16. Diseases produced by bad Potable Water. By M. Bouchardat. 475
17. Epidemic from eating the Meat of a Diseased Cow. By Dr. Husemann. 477
18. Cerebral Hemorrhage. By Mr. Jones. 478
19. Influence of Hypertrophy of the Heart and Diseases of the Cerebral Arteries in the Production of Apoplexy. By Dr. A. Eulenburg. 479
20. Embolism. By M. Gouraud and M. Lancereaux. . . . 479
21. Conditions affecting the Constitution of Phthisical Persons when in Health. By Dr. Edward Smith. 482
22. Cases of Phthisis—Arrest of the Disease, and remarkable gain in Weight. By Dr. Pollock. . 485
23. Clubbed Fingers in Diseases of the Chest. By M. Trousseau. 487
24. Generalized Emphysema. By Mr. Henri Roger. . . . 488
25. Enormous Spleen. By Mr. Nunn. 489
26. Disease of the Supra-renal Capsules without Bronzing of the Skin. By Dr. Wilks. . . 489
27. White Fibro-serous Discharge from the Thigh. By Dr. A. B. Buchanan. 491
28. Urine in Hydrophobia. By Dr. Heller. 492
29. Effects of Diet and Drugs in Treatment of Diabetes Mellitus. By Dr. Andrew Smart. . . 492
30. Diabetes. By Dr. Müller. . 494
31. Action of Sesquichloride of Iron on Phthisis. By Dr. Richard Payne Cotton. . . 494
32. Use of the Alkaline Lactates and of Pepsin in Indigestion. By Dr. Pétrequin. . . . 495
33. Tænia treated by Areca Nut. By Dr. Edwin Morris. . . 496

Surgical Pathology and Therapeutics, and Operative Surgery.

34. Traumatic Tetanus successfully treated by Nicotine. By Mr. Tufnell. 496
35. New Methods of Discovering the Presence of a Ball or other Metallic Body within a Wound —Nélaton's Porcelain Probe— Favre's Galvanic Probe. By M. Nélaton. 499
36. Wire Compress: a Substitute for the Ligature. By Mr. John Dix and Mr. Fergusson. . . 500
37. A Symptom of Fracture of the Base of the Skull. By M. Dolbeau. 504
38. Recovery after Transfixion of the Thorax by an Iron Bar. By Dr. C. W. Hoyland. . . 504
39. Osteo-Aneurism. By Dr. E. D. Mapother. 505
40. Amputation at the Hip-Joint for Malignant Disease of the Thigh. By Mr. James Spence. 507
41. The Urine in Diseases of the Bones. By Dr. Lorinser. . . 508
42. Sac of a Spina Bifida successfully removed by Operation. By Dr. Wilson. 510
43. Ovariotomy. By Mr. Yeo. . 511
44. Imperforate Anus; Successful Treatment by Perineal Incision. By Dr. Friedberg. . . . 511
45. Vaginal Lithotomy. By Dr. Aveling. 511

Midwifery.

46 Tartrate of Antimony as an Oxytoxic. By Dr. Parker. . . 513
47. Dropsy of the Ovum. By Dr. McClintock. 515
48. Unusual Density of the Amnion. By Dr. Sawyer. . . 517
49. Dislocation of the Ensiform Cartilage during Pregnancy. By Dr. Robert Sim. 518

PAGE

50. Pessary Retained Thirteen Years. By Dr. Kidd. . . 519
51. Suprapelvic Hæmatocele. By M. Gosselin. 519
52. Placentæ of Triplets. By Dr. Grimsdale. 519
53. Induration of the Sterno-Cleido-Mastoid Muscle in New-Born Infants. By Dr. Melchiori. . 519

MEDICAL JURISPRUDENCE AND TOXICOLOGY.

54. Dialysis as Applied to the Detection of Poisons in Medico-legal Cases. By Mr. E. R. Harvey. 520
55. Poisoning of a Child by a large Dose of Morphia. By Mr. L. Winterbotham. 520
56. Poisoning by Morphia—Caffeine as an Antidote. By Dr. Anstie. 520
57. Poisoning with Belladonna successfully Treated with Opium. . 521
58. Rupture of the Heart attributed to direct Violence. By Dr. Dickinson. 521

MISCELLANEOUS.

59. State of Epidemic Disease in Great Britain in 1861–62. By Dr. J. N. Radcliffe. . . . 522
60. Sir David Brewster on the Characteristics of the Age. . 524

AMERICAN INTELLIGENCE.

ORIGINAL COMMUNICATIONS.

Circular from the Surgeon-General U. S. A. 527

DOMESTIC SUMMARY.

Double Vision with each and both Eyes. By Dr. G. A. Bethune. . 528
Chestnut Leaves in Whooping-Cough. By Mr. Geo. C. Close. 528
Active Principles of Veratrum Viride. By Mr. G. J. Scattergood. 529
Operation for Compression of the Spinal Cord. By Dr. H. A. Potter. 530
Extract from the Annual Report of the Surgeon-General U. S. A. 532

OBITUARY NOTICES.

Charles W. Short, M. D., Prof. of Materia Medica in Transylvania University. 535
Charles Hooker, M. D., Prof. of Anatomy and Physiology in Yale College. 536

NOTICE TO SUBSCRIBERS.

Subscribers are reminded that *advance payment* for the "MEDICAL JOURNAL" (Five Dollars) is requisite to secure the "MEDICAL NEWS AND LIBRARY" gratis, and the prepayment of postage on both periodicals. See prospectus of terms on back of cover.

The work which for several years has occupied the Library Department of the "MEDICAL NEWS"—"SIMPSON'S LECTURES ON DISEASES OF WOMEN"—having been concluded in the number for December, 1862, the volume selected for 1863 is the highly practical treatise on Asthma, by Dr. Salter, which it is hoped will fully meet the desires of subscribers, and maintain the character of the valuable series of works which have been furnished through the columns of the "NEWS." Gentlemen wishing to secure this book without charge will therefore please to remit for the "JOURNAL" without delay.

Notwithstanding the numerous burdens caused by the existing condition of affairs, the increased expenses and necessarily diminished subscription list, the price of the "JOURNAL" and "NEWS" has not been raised, and subscribers may rely that the editor and publishers will in no degree relax their efforts to render the periodicals in every respect worthy the support of the profession. The career of the "JOURNAL" for over forty years, and of the "NEWS" for twenty, is a guarantee that they will be rendered in the future as in the past, faithful chroniclers of medical progress, useful, if not indispensable, to every member of the profession.

SALTER ON ASTHMA.

Publishing in the Medical News and Library for 1863.

ASTHMA; ITS PATHOLOGY, CAUSES, CONSEQUENCES, AND TREATMENT.

BY H. H. SALTER, M. D., F. R. S., F. R. C. P.,

Lecturer on Physiology and Pathology, and Assistant Physician at Charing Cross Hospital.

No one who reads Dr. Salter's work can doubt for a moment that he is master of his subject. So far as science permits, a progression is here made, whether as regards the general clinical history, the pathology, or the treatment of this affection.—*The Lancet.*

Dr. Salter has carefully studied the nature and treatment of this distressing complaint. The volume now before us presents an amount of information on the subject such as is not to be found elsewhere.—*Dublin Medical Quarterly Journal.*

Dr. Salter has so treated his subject as to have furnished the profession with such a *résumé* of the nature and management of Asthma as will place him amongst a high class of medical writers.—*Lancet.*

The portion of Dr. Salter's work which is devoted to treatment, is of great practical interest and value. He treats successively of the influence of the different drugs which have been found useful in relieving the asthmatic paroxysm, so far as he has had an opportunity of testing their merits, and it would be necessary to follow him step by step in his remarks, not only on the medicinal, but also on the dietetic and hygienic treatment of the disease, in order to convey a just notion of the practical value of this part of his work. This our space forbids, and this we shall little regret, if, by our silence, we should induce our readers to possess themselves of the book itself; a book which, without doubt, deserves to be ranked among the most valuable of recent contributions to the medical literature of this country.—*Ranking's Abstract*, Jan., 1861.

As the "JOURNAL" and "NEWS" together contain about FIFTEEN HUNDRED OCTAVO PAGES per annum, the subscription of Five Dollars in advance, renders them among

THE CHEAPEST OF AMERICAN MEDICAL PERIODICALS,

not only as regards the high character of the contents and the number of pages, but also from the fact that the typographical arrangement gives much more matter on a page than is customary with similar periodicals.

☞ Funds of solvent banks at subscribers' places of residence taken in payment of subscriptions, which may be remitted at our risk, by taking the post-masters' certificate as to the inclosure and forwarding of the money.

Address, BLANCHARD & LEA,
Philadelphia, Pa.

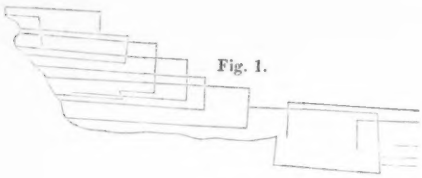


Fig. 1.

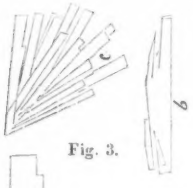


Fig. 3.

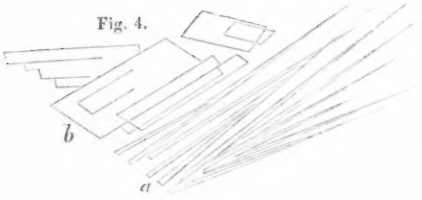


Fig. 4.

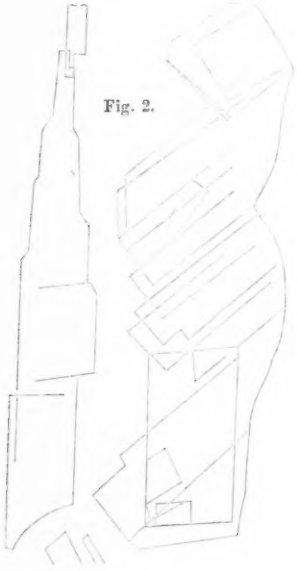


Fig. 2.

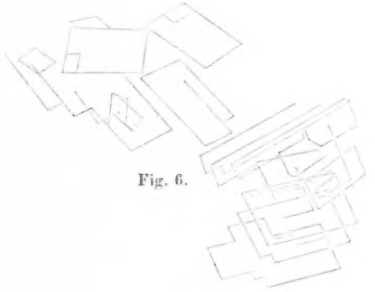
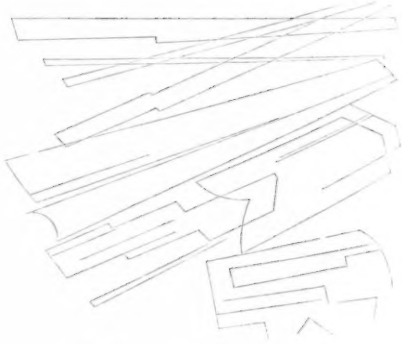


Fig. 6.

Fig. 7.



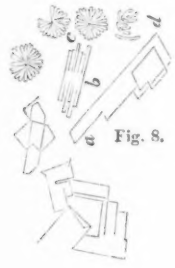


Fig. 8.

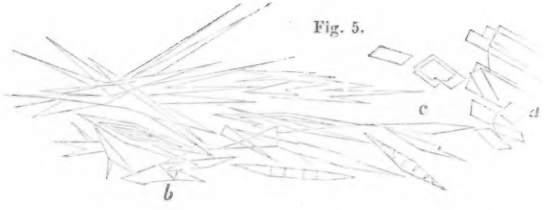


Fig. 5.

Fig. 10.

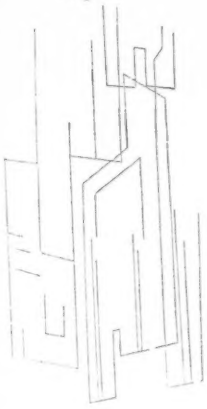


Fig. 9.

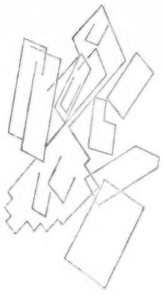


Fig. 11.

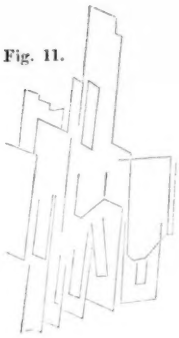


Fig. 13.

Fig. 14.

Fig. 12.

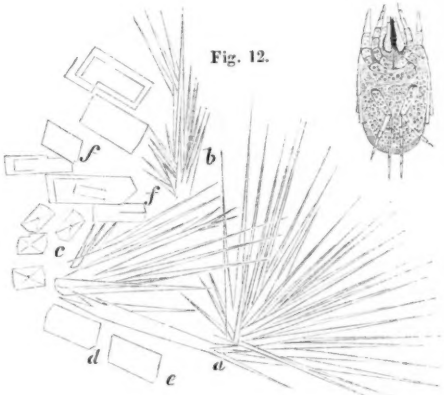


Fig. 17.

Fig. 15.

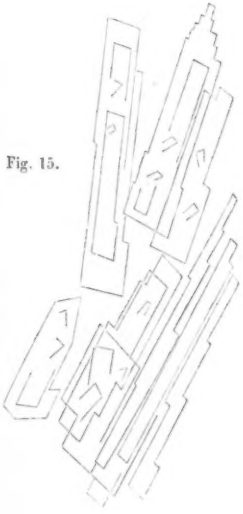


Fig. 16.

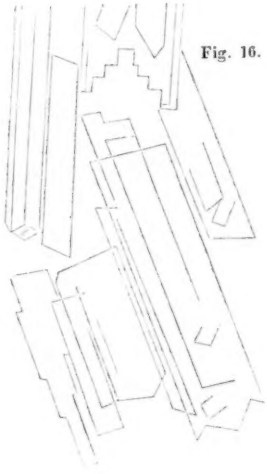


Fig. 18.

THE

AMERICAN JOURNAL

OF THE MEDICAL SCIENCES

FOR APRIL 1863.

ART. I.—*Experiments connected with the Discovery of Cholesterine and Seroline, as Secretions, in Health, of the Salivary, Tear, Mammary, and Sudorific Glands; of the Testis and Ovary; of the Kidneys in Hepatic Derangements; of Mucous Membranes when congested and inflamed; and in the Fluid of Ascites and that of Spina Bifida.* By J. H. SALISBURY, M. D. (With two plates containing eighteen figures.)

I HAVE read, with much interest, the able paper of Austin Flint, Jr., M. D., of New York, entitled "Experimental Researches into a New Excretory Function of the Liver; consisting in the Removal of Cholesterine from the Blood, and its discharge from the body in the form of Stercorine;" published in the number of this Journal for October last.

Having in similar experiments, in which I have been for some time engaged, determined the presence of cholesterine and seroline (stercorine of Dr. Flint) in other healthy secretions of the human body—in the testis and ova of the human subject—in the ova of some animals—and in morbid collections of fluid in the human body, I here present briefly results which, so far as I know, are new.

The process followed for separating these bodies was, in all essential particulars, similar to that pursued by Dr. Flint, and for which I refer to his able paper.

Exp. 1. *Cholesterine in human ova.*—An unmarried woman, aged about 26, of strong constitution, was found dead in bed. On making a post-mortem examination, the stomach was found highly inflamed and ruptured. A gravid uterus was found, from which a fœtus, about three months gone, had recently been expelled. Near the body were found two bottles, one containing chloroform and the other oil of savin. The genital organs, stomach, and intestines, were taken for examination. Oil of savin was found in the fecal matter of intestines and in the contents of the

stomach, which had been emptied into the peritoneal cavity. From all the facts that could be gathered, from the post-mortem and chemical examinations, it appeared that the woman came to her death from taking oil of savin to produce abortion. The abortion was effected; but so much inflammation and softening of the stomach had been produced by the oil of savin that, during the severe vomiting the stomach was ruptured and death ensued. The ovaries were carefully washed and macerated in several waters, to free them from all adhering blood and serous matter; the ovisacs were then one by one punctured and their contents received into a porcelain capsule; this matter was evaporated to dryness over a water-bath, and the residuum subjected to the process for obtaining cholesterine and seroline. A concentrated hot alcoholic solution of the matter obtained was placed between glass slides to gradually crystallize. In a short time there appeared a beautiful mass of crystalline plates, which proved to be cholesterine, a portion of which is seen at Fig. 9. A quantitative examination was not made, but the qualitative revealed cholesterine largely present. No crystals of seroline appeared.

Exp. 2. *Cholesterine in ova of swine.*—The ovaries of pigs about six months old were taken and treated to separate adhering blood and outside serous matter; the ovisacs punctured, and their contents received into a large watch-glass capsule; evaporated to dryness over a water-bath, and residuum subjected to the process for obtaining cholesterine. The result was an abundant crop of crystals, having very much the appearance of those seen at Fig. 9, before referred to.

Exps. 3, 4, *and* 5. *Cholesterine in Graafian vesicles, liquor amnii, and brain of sow.*—A sow, weighing 525 lbs., was killed Dec. 1. She was about two years old, and very fat. The uterus contained twelve pigs that had attained about one-fourth their fœtal growth. Removed for examination, while the hog was still warm, the following parts: brain, contents of gall-bladder, liquor amnii, and ovaries. The brain (cerebrum and cerebellum) in its warm, fresh state, weighed 3147.59 grains. The gall-bladder contained of dark amber-colored bile 2160 grains. Bile alkaline, slightly ropy, and about the consistence of sweet oil at 90° F. Obtained from the ovisacs or Graafian vesicles between forty and fifty drops of a thin albuminous fluid, resembling the white of a hen's egg in feel and in coagulating properties. Of liquor amnii there was about four ounces to each pig. The amniotic fluid had a slight straw-yellow colour, was clear, and almost as limpid as water. It had an alkaline reaction, and the odor of fresh serum.

Subjected forty drops of the fluid from the Graafian vesicles to the process for determining the presence of cholesterine. Obtained a small crop of well-defined crystals resembling those seen at Fig. 9.

The liquor amnii, on cooling and standing in a porcelain evaporating dish for about six hours, contained on its surface a thin iridescent pellicle fissured by several sets of cleavage lines, which were often parallel to each other, and the different sets crossing either at acute or right angles. This pellicle proved to be cholesterine.

300 grains of the fresh brain (about equal parts of cerebrum and cerebellum, gray and white matter) were taken and subjected to the process for obtaining the cholesterine. The result weighed 3.897 grains. Percentage of cholesterine in fresh brain 1.299. The cholesterine as obtained had a beautiful white pearly lustre and crystalline appearance to the unaided eye. Redissolved in ether and allowed to crystallize slowly between glass slides, the crystals under the microscope had the appearance seen at Fig. 10.

Exp. 6. *Cholesterine in bile of sow.*—Subjected 800 grains of the fresh bile from the sow to the process for obtaining the cholesterine. The result weighed 5.614 grains. Percentage of cholesterine .702. The cholesterine had a white pearly lustre and crystalline appearance. Redissolved in ether and allowed to crystallize slowly between glass slides. The crystals had the appearance seen at Fig. 7. Many of the plates were very long and narrow.

Exp. 7. *Ova of hen.*—About half of the yolk of a fresh, newly-laid hen's egg was evaporated to dryness carefully over a water-bath, and the residuum proceeded with for obtaining cholesterine and seroline. The result was an abundant crop of crystals between the glass slides, a portion of which is seen at Fig. 1. The crystals were large and less rhomboidal than in the previous experiments. No seroline was found.

Exp. 8. *Ova of black bass.*—About one ounce of the ova of a large black bass (weight about eight lbs.) was examined in the usual way for cholesterine and seroline. After the final concentrated hot alcoholic solution had evaporated between glass slides, it was examined microscopically and found to contain a beautiful and abundant crop of cholesterine, a portion of which is seen at Fig. 2. The crystals were very large, and more rectangular than those from the human ova. No seroline was found.

Exp. 9. In the ovisac of the black bass described in the previous experiment were two large ragged calculi, one $3\frac{1}{2}$ inches long and $1\frac{1}{2}$ inches in diameter. They were covered with an iridescent membrane, resembling in appearance the metallic iridescence on the surface of the fish. These calculi were examined for cholesterine and seroline, and were found to contain the former in much larger quantity than the ova. The crystals had the same appearance as those seen at Fig. 2. No seroline was found.

Exp. 10. *Seminal fluid.*—Procured from a strong healthy man, aged about 35, two drachms of seminal fluid. Evaporated to dryness over a water-bath and proceeded with the residuum in the usual way for obtaining cholesterine and seroline. The final alcoholic solution, on evaporating between glass slides, was found to be composed of an abundant crop of crystals, a sample of which is seen at fig. 5. The amount of cholesterine was large, considering the quantity of material operated upon, but the crystals were small, as seen at *a;* a large proportion of the crystalline matter, however, was seroline, having the appearance of the crystals seen at *b* and *c*. Some of these crystals are seen to be rhomboidal, very acutely so, as at *c*.

Exp. 11. *Saliva.*—Evaporated to dryness and examined for cholesterine and seroline, two ounces of healthy saliva. Evaporated it over a water-bath in a broad, flat-bottomed porcelain dish; so that in thirty minutes after it was secreted the evaporation was complete. The saliva was from a strong healthy man, in the prime of life, who neither indulged in chewing or smoking tobacco, or in the drinking of intoxicating liquors. On placing the final alcoholic solution between glass slides, there was soon produced a large and beautiful crop of cholesterine crystals, the appearance of a portion of which is seen at Fig. 6. A quantitative examination was not made, but the qualitative analysis demonstrated it largely present in the saliva; apparently almost as abundant in this secretion as in the bile. No crystals of seroline were found.

Exp. 12. *Secretion from congested and inflamed mucous membrane.*—A strong healthy man contracted a severe cold from sleeping in a damp room. About forty-eight hours after, the mucous membrane of the fauces and nose became so congested and inflamed that a thin, watery, transparent fluid flowed from the nostrils at the rate of about two drops per minute. About one ounce of this fluid was collected. Under the microscope each drop was found to contain about 200 mucus cells and 100 colourless blood-disks. The one ounce was carefully evaporated to dryness over a water-bath and the residuum treated in the usual way for obtaining cholesterine and seroline. The presence of cholesterine was demonstrated in small quantity, much less than in the serum of the blood.

Exp. 13. *Bronchial mucus.*—Took two ounces of bronchial mucus expectorated by a patient labouring under severe chronic bronchial disease,[1] and subjected it to the process for determining the presence of cholesterine and seroline. A very small quantity of cholesterine was obtained, the appearance of which, as crystallized between the glass slides, is seen at Fig. 8, *a* and *b*. The crystal at *b* is split at the ends, like the crystals of cholesterine found in the fluid of ascites, seen at Fig. 3, *a* and *b*. The same form of crystal also occurs in jaundice urine. There was also found a small quantity of the peculiar crystalline matter seen at *c*, Fig. 8, and the bent prisms seen at *d*. From the small quantity of cholesterine found, it is probable that what there was came mostly from the small amount of saliva which necessarily would become mixed with the bronchial mucus in its passage through the mouth. The crystalline matter seen at *c* and *d* did not occur in the saliva examined. It is fair, therefore, to infer that it belongs to the bronchial mucus. The bronchial mucus was very thick, ropy, and white, having the appearance of coagulated albumen. It was quite acid. No pus present.

Exp. 14. *Serous fluid.*—Examined for cholesterine and seroline the serous fluid from the peritoneal cavity in a case of ascites in a female aged 73. "Liver extensively diseased. Had abscess a year ago, which pointed and discharged copiously at umbilicus. The dropsical effusion rapidly accumulated up to Nov. 12th, when she was tapped."[2]

The fluid had a milky appearance, and was thin and watery; slightly acid. Evaporated five ounces of the fluid to dryness over a water-bath, and subjected the residuum to the process for determining the presence of cholesterine and seroline. The final alcoholic solution gave, on being gradually evaporated between glass slides, some fine groups of crystals, samples of which are seen at Fig. 3, *a*, *b*, *c*, *d*. Those at *d* represent the usual form of cholesterine crystals; several groups presented the narrow radiating tablets seen at *c*, and still others had the appearance of those at *a* and *b*, the extremities of the plates being divided and bent.

Exp. 15. *Fluid of spina bifida tumour.*—Three ounces of fluid[3] from a spina bifida tumour in a child, was evaporated to dryness carefully over

[1] This patient was attended by Dr. Boerstler, to whose kindness I am indebted for furnishing the expectorated mucus for examination.

[2] I am indebted to the kindness of Dr. Effinger, of Lancaster, O., for the report of this case, and the fluid furnished for examination.

[3] Kindly furnished by Dr. Boerstler, of Lancaster, O., to whom I am indebted for many similar favours.

a water-bath, and treated further in the usual way for discovering cholesterine and seroline. The fluid was slightly alkaline. Cholesterine was demonstrated to be present in considerable quantity.

A portion of the fluid was examined carefully under the microscope. It was thin, watery, and milky, with numerous white flocks floating though it. These flocks under a low power (200 diameters) presented the appearance of fragments of milk curd. Under a higher power (600 diameters) they were resolved into the bodies mentioned below. Many of the "milk curd masses" were composed of nerve tubuli. Occasionally was found a tuberculated cell filled with fluid, and met with in most animal and vegetable tissues, and resembling somewhat some varieties of pollen grains. There were also found numerous spherical fungoid spores, aggregated in flocks, and among them was noticed a single elongated vegetating spore. Scattered through the fluid, quite abundantly, were flattish oblate spheroidal, highly refractive cells of various sizes, many of the larger of which had the appearance of being ruptured on the side. Occasionally one was met with containing small reddish-brown spherical cells.

In the flocks mentioned above were many remains of disintegrating cells. There were also numerous minute linear bodies, moniliform in structure, all through the liquid, and which in many instances were in active motion, making the whole mass of the liquid alive with them, the fluid being still fresh and sweet. These are the *so-called "vibriones;"* they have, however, no connection whatever with the *vibrii*, either in structure or mode of development. From the numerous examinations made, connected with diseased tissues, and fermenting and decaying bodies, I am strongly impressed with the belief that many of them are organisms, allied to sperm cells, being spermatozoid or antherozoid in character. There is evidence for believing some of them to be embryonic states of filamentous organisms belonging, or closely allied to, the confervaceæ. These latter are found in their mature state abundantly in the spleen, kidneys, and liver of animals and of the human subject, wound together in various ways and firmly attached to the glandular vessels. Analogous bodies are found in all stagnant waters, in the asci of Cryptogams, in the pollen grains of Phænogams, in the secretions and blood of the human body in all low typhoid types of disease, in all fermenting bodies, and especially during the incipient stages of active putrefactive fermentation (decay) in animal tissues. By inoculating fresh meat with them its decay is accelerated. During that stage of decay in the dead human body when dissecting wounds are so dangerous, they are very abundant and active; at later stages of the decay, when wounds are less dangerous, they are less numerous, and either motionless or sluggish, or are developed into inactive filaments. May they not be the source of the dangerous typhoid conditions produced by dissecting wounds? Occasionally was met a cell containing the sperm cells (so called vibriones) just described. Torula cells were frequently met with, either single or aggregated in masses. There were also several asci and numerous highly refractive sporoid bodies noticed, besides a peculiar barbed filament that I have frequently met with, connected with the glands and circulating fluids of animals.

Exp. 16. *Tears.*—Evaporated to dryness forty drops of freshly secreted tears, and treated the residuum for determining the presence of cholesterine and seroline. The tears were secreted by a lady of middle age, of remarkable health and vigour of constitution.

The residuum in the forty drops was large. On allowing the final alcoholic solution to evaporate slowly between glass slides, a fine crop of cholesterine crystals was the result. They resembled much the crystals in Fig. 16.

Exp. 17. *Milk.*—Milk of a young married lady, of vigorous constitution, eight months gone with her first child. Evaporated one drachm to dryness carefully over a water bath—within a few minutes after it was drawn—and subjected the residuum (which was large) to the process for determining cholesterine and seroline. The final hot alcoholic solution, on evaporating between glass slides, yielded a large crop of rhomboidal and rectangular plates of cholesterine—a sample of which is seen at Fig. 11. No crystals of seroline were discovered. A quantitative analysis was not made; but the qualitative demonstrated cholesterine to be largely present.

Exp. 18. Milk from a lady of fine constitution, nursing her second child, which is nine months old. Milk abundant, and child healthy and robust. Took 500 grains of the newly secreted milk and evaporated it to dryness over a water bath, and proceeded with the residuum (which was large) to determine the presence and amount of cholesterine and seroline. On evaporating the final alcoholic extract to dryness carefully over a water bath in a tarred porcelain capsule, I found .64 of a grain of unsaponifiable matter, which proved to be seroline and cholesterine. From the apparent relative proportion of the crystals exhibited between the glass slides, I should estimate over one-half to be cholesterine.

The result may be stated as follows:—

Freshly secreted milk	500	grains.
Stercorine and cholesterine	.64	"
Percentage of stercorine and cholesterine . .	.128	"

Fearing there might be some error in this result I repeated the process—carrying on the saponification with a strong solution of pure caustic potassa—at a temperature of 212° F. over a water bath, for one and a half hours, repeatedly stirring; then largely diluting with water and filtering, &c. The result was the same as in the preceding experiment. A concentrated hot alcoholic solution, placed between glass slides, crystallized in long slender, often radiating needles, as seen in Fig. 12. Mixed with these crystals of seroline, appeared plates of cholesterine, *c*, *d*, *w*, *f*. These crystals first appeared as seen at *c*, then passed into the forms *d*, *d*, and these into the forms *w*; and *w* into the forms seen at *f*, *f*.

Exp. 19. Took 700 grains of healthy, freshly secreted cow's milk (about five months after coming in), evaporated to dryness over a water bath, and treated the residuum as hereafter described for obtaining seroline and cholesterine. The final alcoholic solution, being carefully evaporated and thoroughly dried over a water bath, in a tarred porcelain capsule—weighed .759 of a grain, which proved to be seroline and cholesterine. On redissolving in hot alcohol and allowing a concentrated solution to crystallize between glass slides, the seroline crystals were found to resemble those from the milk of the human subject (Fig. 12). Those of cholesterine were rather peculiar.

The result of the analysis may be stated as follows:—

Fresh cow's milk	700	grains.
Seroline and cholesterine	.759	"
Percentage of seroline and cholesterine . .	.1084	"

The last portions dissolved from the dry matter of the milk, by ether, contained the majority of the cholesterine. The seroline and the saponifiable fats were the first to be dissolved. For this reason, two ethereal extracts were made from the dried milk. In the first, the dried pulverized matter was digested at a temperature of 75° to 80° F. for twelve hours, in pure ether, frequently stirring, the vessel being so covered as to prevent as much as possible the evaporation of the ether. It was then filtered, and this first extract proceeded with in the usual way. No cholesterine was detected in it; but quite a large percentage of seroline, which in its crystals resembled that of the human milk (Fig. 12). The dry matter was a second time digested in ether, frequently stirring, for twenty-four hours; then filtered, thoroughly washing with warm ether, and this second extract proceeded with as with the first. The final alcoholic extract, on being evaporated to dryness over a water bath, left a yellowish matter having something the appearance and consistence of unbleached wax. Its lustre, however, was more pearly. It was but slightly soluble in cold alcohol; slowly soluble in hot alcohol, and readily soluble in ether both cold and warm. The concentrated ethereal solution, on being placed between glass slides, so as to prevent its too rapid evaporation, soon crystallized into beautiful cholesterine plates.

There were a few acicular prisms or plates, bent in the form of a crescent. They resembled those seen at *d*, Fig. 8.

Milk holds cholesterine with great tenacity, and requires long digestion to completely separate it. The early secreted milk in the human subject, previous to birth, is quite free from seroline; but after birth, and during nursing, the seroline is secreted largely with the cholesterine.

Exp. 20. *Intermittent fever. Perspiration.*—Sept. 10. John Laudabagh[1] was attacked with intermittent fever. Type quotidian. Had been free from the disease for eighteen years previous. On the afternoon of the 14th (fifth day of disease) procured about one-half ounce of the perspiration, during the sweating stage of the paroxysm. Perspiration alkaline, limpid like water, and perfectly clear and transparent. Subjected two drachms to the process for obtaining cholesterine and seroline. Obtained a beautiful crop of crystals, a sample of which is seen at Fig. 4, *a* and *b*. The seroline and cholesterine appeared to be about equally divided. The seroline crystals were very beautiful, long, slender needles. When a crystal was alone, so that the whole of it could be seen, one end presented the appearance of a narrow rectangular plate, while the other tapered off into a sharp acicular point. Sometimes the bases (large ends) of the crystals were bifurcated, and at others the apices were more or less divided. The cholesterine crystallized in large rhomboidal and rectangular plates. A quantitative examination was not made, but the qualitative determined these bodies to be largely present in the perspiration of intermittent fever.

Exp. 21.[2] *Urine.*—Charles Whitney, aged five years, was attacked Sept. 13, with intermittent fever—quotidian type. Never had chills and fever before. He resides in the 3d ward near and but a few feet above the ague bogs. At 11 A. M., Sept. 13, was taken with the first well-marked paroxysm. The sweating stage terminated at 4 P. M. On the following

[1] This case was reported and perspiration furnished by Dr. Effinger.

[2] I am indebted to the kindness of Dr. Effinger for the reports and the materials furnished for examination of the cases in Experiments 21 to 33, and 35 and 37.

day (Sept. 14) the paroxysm commenced at 9 A. M. The algid, pyrexial and sweating stages were all well-marked. Voided the sample of urine—of this experiment—at 3 P. M., as the febrile stage was passing off and the sweating coming on.

Subjected two ounces of the urine to the process for obtaining cholesterine and seroline. Obtained from the final alcoholic solution a large crop of beautiful rhomboidal and rectangular plates, a sample of which is seen at Fig. 18. Some of the crystals were divided at the extremities, as is seen at *a*.

Exp. 22. Mr. C——, aged 48, was attacked with intermittent fever, tertian type, Sept. 1. Arrested after the second paroxysm. Relapse Sept. 15. Arrested the second time after the second paroxysm. Urine obtained Sept. 21, four days after the arrest of the paroxysm the second time. His complexion was sallow, appetite poor, with considerable physical prostration, and mental lethargy.

His residence was near a large excavation which was being made in the low ground adjoining the canal, and from which he was constantly exposed to the seeds of the disease. Never had the disease before.

One ounce of the urine was subjected to the process for determining the presence of cholesterine and seroline. Well-marked rhomboidal and rectangular plates of cholesterine were obtained, resembling those at Fig. 18. No seroline found.

Exp. 23. James Scott, aged 13 years, living immediately on the border of the ague bogs, at Lancaster, O., and but about five feet above them, had been labouring under intermittent fever most of the time since the 1st of August. Type quotidian. Obtained his urine Sept. 26, during the interval between the paroxysms, and two days after he had commenced taking quinia (previously he had been dosed with herb teas). Subjected one ounce of the urine to the process for determining the presence of cholesterine and seroline. Obtained a few small well-marked crystals of the former body, but none of the latter.

Exp. 24. Ellisworth McLean, aged 17 months, was attacked with intermittent fever — quotidian type — during the forepart of August. Dr. Effinger saw the child for the first time on the 7th of October. He reports him as much reduced, very pale, flesh doughy; face bloated, and feet and legs œdematous. Spleen enlarged, forming a well-marked "ague cake." He commenced his treatment with acetate of potash. He obtained the urine for me on the 9th of October, during the apyrexial stage. Urine pale, clear, and slightly alkaline. Subjected two ounces to the process for determining the presence of cholesterine. Obtained a fine crop of well-marked crystals, resembling those at Fig. 18.

Exp. 25. *Urine of remittent fever.*—Mr. C——, aged about 30, had been labouring for some days under an attack of remittent fever. Obtained his urine on the ninth day of the disease, when convalescing. Treated two ounces of the urine for cholesterine and seroline. Obtained a fine crop of cholesterine crystals, with which were mixed a few crystals of seroline.

Exp. 26. *Urine of typhoid fever.*—Mrs. E——, a married lady of about 30, of good constitution, was attacked with typhoid fever, August 26. On Sept. 9, the fourteenth day of disease, obtained his urine. Urine acid, high-coloured; full of active "vibriones," and had a large deposit of

rhomboidal and lozenge-shaped prisms and plates of lithic acid. Pulse from 100 to 120. Considerable enteric tenderness, with slight diarrhœa. Subjected two ounces of the urine to the process for determining the presence of cholesterine and seroline. Obtained a large crop of well-defined rhomboidal and rectangular plates, a sample of which is seen at Fig. 16. The crystals were formed between glass slides, and were very large and beautiful. At *a* is a long 6-sided prism, made up of distinct laminæ.

Exp. 27. Mrs. E—— (the same case as 26), on the 18th of September and the twenty-second day of the disease, appeared to be improving. The mind was clearer, and appetite better; but the pulse still remained up to 110 and 120, and was small. Skin dry. Strength of body and mind improved since Sept. 9th. Obtained her urine. It was lighter in colour and contained less sediment than the previous one. The character of the sediment was, however, the same. Subjected two ounces to the usual process for obtaining cholesterine. Obtained a fine crop of crystals like those at Fig. 16.

Exp. 28. Mrs. E—— (same case as 26 and 27)—typhoid fever—Oct. 20, fifty-fourth day of disease. Patient still in a very low, depressed state. Pulse 120, but no fever; is very pale, body feeble, mind weak, nervous, and fretted by the least noise. Hearing completely restored and very sensitive. Has scarcely any appetite, sleep nervous and disturbed. Urinates frequently and quite copiously. Obtained the urine Oct. 20, through the kindness of her attending physician, Dr. Effinger. Urine pale (still containing many vibriones), strongly acid, and contains much less sediment than the previous samples.

Subjected two ounces to the process for determining the presence of cholesterine and seroline. Found cholesterine still present, in considerable quantity; quite as large as in the previous examinations. The plates had the appearance of those at Fig. 16. No seroline was found.

Exp. 29. Libby ——, domestic at Mrs. E.'s, aged 25, down with typhoid fever. Attended Mrs. E. in her attack of typhoid fever. Libby was attacked on the 4th of October, thirty-eight days after Mrs. E. was taken down. Oct. 20, the seventeenth day of the disease, obtained her urine through Dr. Effiinger, her attending physician. He reports the diarrhœa constant, and the most annoying symptom, indicating enteric glandular depositions and inflammation. For the last week the passages were mixed with blood. Mind yet clear, but very deaf; has been so for over a week. Prostration not very great, less than ordinary. Urine slightly acid, high-coloured, with considerable lithic sediment.

Subjected two ounces of the urine to the process for obtaining cholesterine and seroline. Obtained a fine crop of crystals of cholesterine, which resembled those seen at Fig. 16. No seroline found.

Exp. 30. Libby (same case as the above, at an earlier date), Oct. 8, fourth day of the disease. Obtained urine, and subjected it to the process for obtaining cholesterine and seroline. Obtained well-defined rhomboidal and rectangular plates of cholesterine. The amount present was less than in the urine of the preceding experiment. No seroline found.

Exp. 31. Samuel E——, aged 11 years, son of Mrs. E——, was taken down with typhoid fever on the 8th of October. On October 20th—the twelfth day of the disease—obtained his urine, through the attending phy-

sician, Dr. Effinger. He reports the case a mild type of the disease. He says, "There are no marked symptoms of disturbance of the system, either functional or organic, except at night, when he is restless and feverish. Though an active and sprightly boy, he has no disposition to set up or leave his bed. While there recumbent he is cheerful and pleasant, amusing himself with his slate and books. As soon as he gets up and moves about he becomes pale and sick, and goes back to bed."

Urine strongly acid, of a yellowish colour, with considerable flocculent sediment. The upper portion of the precipitate is light coloured, and the lower of the colour and appearance of brick dust. This lower portion is made up of lithates. Two ounces of the urine were subjected to the process for obtaining cholesterine and seroline. A few well-defined rhomboidal and lozenge-shaped tablets of cholesterine were obtained. The cholesterine was small in this urine. No seroline.

Exp. 32. Lucy ——, the sister and nurse of Libby (domestic to Mrs. E——), was attacked with typhoid fever on the 8th of November, thirty-six days after her sister Libby was attacked, and whom she attended as nurse. Obtained her urine, through the attending physician, Dr. Effinger, on the 22d day of November, the fourteenth day of the disease. "Fever constant, but not high. Diarrhœa set in on the 20th November (day before yesterday). Discharges frequent and bloody. Urine acid, high coloured, and contains a large precipitate of lithates.

Two ounces of the urine were subjected to the process for obtaining cholesterine and seroline. A fine crop of cholesterine crystals was obtained, the appearance of which were like those in Fig. 16. Crystallized on the glass slides it had a beautiful pearly lustre to the naked eye. Cholesterine occurred largely in this sample of urine. No seroline was found.

Exp. 33. *Urine of diphtheria.*—Lizzie Prentice, aged 5 years, labouring under well-marked diphtheria. Morning urine obtained, and two ounces subjected to the process for obtaining cholesterine and seroline. Obtained a few well-marked crystals of cholesterine. No seroline.

Exp. 34. *Urine of varicella.*—Sallie Mattock, aged 8 years, labouring under well-marked varicella. Her morning urine was obtained when the eruption was at its height. Treated two ounces of it for cholesterine and seroline. Obtained well-marked crystals of cholesterine, a sample of which is seen at Fig. 17. No seroline found.

Exp. 35. *Urine of jaundice.*—Urine of a patient labouring under well-marked jaundice. Urine voided on the fifteenth day of the disease. Urine slightly acid, high coloured, with quite a large flocculent yellow precipitate. Two ounces of the urine were evaporated over a water-bath to dryness, and the residuum treated in the usual way for cholesterine and seroline. The final alcoholic extract, on being placed between glass slides and allowed to stand for six hours, gave a fine crop of crystals; some of which represent the usual crystalline form of cholesterine. The crystals were small, but quite numerous. Some of the crystals were split at the ends, like those at *a* and *b*, Fig. 3. Others were very acutely rhomboidal; while others were acicular, yet retained somewhat the very acutely rhomboidal outline, where they were perfect and alone. These last were undoubtedly crystals of seroline, and were quite abundant.

Exp. 36. Urine from a lady affected with jaundice. Urine voided during

the third week of the disease. Had a high colour, strong odour, and a small, yellowish sediment, resembling oil globules. Treated in the usual way—one ounce for cholesterine and seroline. Obtained a very fine crop of crystals, consisting of long rhomboidal and rectangular plates of cholesterine, with which were mixed a few acicular crystals of seroline.

Exp. 37. Mrs. M——, cook on board a canal boat, aged 53, was attacked with jaundice about the first of September, and is still labouring under the disease (October 26th). Obtained urine, through her attending physician, Dr. Effinger, and subjected two ounces to the process for determining the presence of cholesterine and seroline. The final alcoholic solution, evaporated between glass slides, afforded a fine crop of cholesterine crystals, showing this body quite largely present.

Exps. 38, 39, and 40—*Butter, and beef and hog suet*—were the examinations of butter, and beef and hog suet. Cholesterine and seroline were demonstrated in all of them. In beef suet, cholesterine occurs quite largely.

Exp. 41. *Urine of diabetes mellitus.*—Mr. ——[1], labouring under a severe attack of diabetes. The patient is a robust, middle-aged man, who has, previous to this attack, enjoyed good health. He passed about 192 ounces of urine daily. It was rich in sugar, and underwent active fermentation; during which the torula (yeast) cells and filaments were greatly multiplied. A sample of the urine (½ pint), the next day after it was voided, was subjected to the process for determining the presence of cholesterine and seroline. From the ½ pint, 4.32 grains of cholesterine were obtained. The crystals were very large and beautiful, a sample of which is seen at Fig. 15. No seroline was obtained. From this experiment it is seen that cholesterine occurs largely in diabetic urine. The discharge of a single day (192 ounces) would contain 103.68 grains of cholesterine. The discovery of cholesterine, as a secretion of the kidneys in *diabetes mellitus*, may throw some additional light upon the nature of the disease, and perhaps suggest some modifications in its treatment.

Exp. 42. *Healthy urine.*—Examined 8 ounces of healthy urine for cholesterine and seroline. The urine was voided by a pregnant lady, of fine constitution, eight months gone with her first child. Urine slightly acid. Was unable to detect the least trace of either of the bodies sought for.

Exp. 43.—Examined the urine of a strong, healthy man, aged about 30, for cholesterine and seroline. Subjected 4 ounces to the usual process (the one used in the preceding experiments), but was not able to detect a trace of either of the bodies.

Exp. 44. *Perspiration in health.*—Examined 1 drachm of healthy perspiration (secretion excited by vigorous exercise) for cholesterine and seroline. Well-marked crystals of cholesterine were found. No seroline.

Exp. 45. *Ovarian tumour.*—The following note from Dr. Effinger, of Lancaster, Ohio, explains the subject of this experiment:—

"DEAR DOCTOR: Yesterday morning I made a *post-mortem* of Mrs. Calvin Tripp, who died of ovarian tumour. The tumour weighed 62 pounds, water 15 lbs., and hard part of tumour 47 lbs. I made a few slices from different parts

[1] I am indebted to Dr. Boerstler for reporting this case and furnishing the urine for examination.

of the tumour, which I send you. I found imbedded in the substance a small, dead worm that may possibly be a novelty. You will find it in the cut I made near its burrow cell.

"Respectfully yours,
"M. EFFINGER.

"LANCASTER, Nov. 29th, 1862."

The tumour had a white, fatty appearance, to the unaided eye. It was, however, very firm and tenacious. The microscope demonstrated it to be strictly a fibrous tumour. A portion of it was examined for cholesterine and seroline, but neither of them were detected.

Fig. 13 represents the worm referred to in the above note of Dr. Effinger. Length two lines; diameter $\frac{2}{5}$ of a line. To the naked eye it had the appearance of a small fragment of clotted blood. Viewed with a $\frac{1}{4}$ inch objective, it appeared the size seen at Fig. 13. Colour blood-red, except the sucker and around the margins of the body. When emptied of its food it had a transparent white colour. It had one sucker, and that on the anterior part of the body. It appears to be allied to the genus Festucaria.

While examining a thin slice of the tumour under the microscope, I discovered among the fibres, the mite represented at Fig. 14. Length $\frac{1}{300}$ of an inch. A short time since, while examining the perspiration from a patient labouring under intermittent fever, I found a different species of the same genus.

Chemical Properties of Cholesterine.—The sample of cholesterine, obtained from the second ethereal extract from milk, remained unfused at a heat considerably above that of boiling water. Its precise freezing point was not determined. The freezing point of cholesterine is stated by different authorities at 279° and 293° F.

Concentrated SO_3 strikes a beautiful purple red colour, with the cholesterine obtained in the foregoing experiments. In order to see this test to advantage, a little cholesterine should be spread thinly on a glass slide or plate, and a drop of concentrated SO_3 placed on and spread over it by means of a glass rod. The beautiful purple red tint will begin to show itself—first, around the edges of the acid, and, in a few minutes, the whole surface will assume this beautiful colour. Heat should not be applied, nor too much acid used.

Cholesterine is soluble in 9 parts of boiling alcohol of 0.84, and 5.55 parts of 0.816. It is soluble in 12 parts of ether at 32° F., 3.7 at 59° F., and 2.2 at boiling. It is also soluble in wood-spirit, slightly soluble in boiling oil of turpentine and in water containing 4 parts of dry soap. Heated with SO_3 it decomposes, and NO_5 changes it into cholesteric acid and artificial tannin. Form. $C_{36}H_{32}O$, or $C_{36}H_{32}O$.

Chemical Properties of Seroline.—Lehman gives the melting point of seroline at 98° 8′ F. Boudet at 97° F.

Boudet's process for obtaining seroline from the blood—was to evaporate the blood to dryness, treat the residuum thoroughly with water, then dry completely the residuum, and repeatedly treat it with boiling alcohol.

This alcoholic extract on cooling let fall the seroline in flocks. By this process Boudet must have obtained with the seroline some small portions of margarine and stearine, which would have a tendency to elevate the melting point.

For obtaining the seroline, which was used for determining the fusing point of this body, I evaporated to dryness over a water bath, pulverized in an agate mortar and digested with pure ether for twelve hours—repeatedly stirring and keeping the vessel so covered as to prevent the evaporation of the ether—filtered, evaporated filtrate to dryness over a water bath, and digested the residue at 212° with a strong solution of pure caustic potassa for one and a half hours to saponify the saponifiable fats; then largely diluted with water and filtered, washing the filter with water till the fluid came through neutral. The filter was then thoroughly, yet carefully dried over a water bath, placed in a warm covered funnel and kept filled with ether till that which passed through, on evaporation, left no residuum. The filtrate was then evaporated to dryness over a water bath and redissolved in hot absolute alcohol, and the seroline allowed to deposit as the alcohol cooled and evaporated spontaneously. Before the seroline was tested for the fusing point, it was exposed to the heat of 212° over a water bath in a watch glass, until completely deprived of all alcohol and moisture. It was then allowed to cool and crystallize at a temperature of 50° F. When perfectly crystallized, its fusing point was determined.

The seroline thus obtained began to lose its white colour and crystalline structure at 90° F. At 94° F. it had the consistence of Canada balsam and had lost entirely its crystalline structure, and at 96° F. it flowed readily, and was about the consistence of sweet oil. At this last temperature it had a light straw yellow tinge. At 32° F. it had a white pearly lustre, like spermaceti, but less consistent. At 50° F. it had the consistence of lard at 80°. When allowed to crystallize slowly, it crystallized in long slender needles, as seen at Figs. 12 and 4. Cold, it was odourless; at 212° it exhaled a sweet oily odour. Almost insoluble in cold alcohol, but very soluble in ether and hot alcohol. Strikes, like cholesterine, a beautiful violet red colour with strong SO_3.

Primary Form of the Crystals of Cholesterine and Seroline.—The primary form of the crystals of cholesterine appears to be the cube and rhombic prism. In a few instances, in the early stages of the crystallization, hexagonal prisms were noticed; but these were probably formed from the rhombic prisms by the truncation of the acute angles, as is the case in some crystals of mica. The octohedra, rectangular prisms and plates may be secondary forms of the cube and rhombic prism.

In these experiments there has appeared some evidence in favour of the very acute rhombic and rhomboidal prisms being the primary form of the acicular crystals of seroline.

Resumé.—The following is a brief summary of the facts indicated by the preceding experiments:—

1. Cholesterine occurs largely in the ova of the human subject and of animals.

2. In the seminal fluid of the human subject, seroline and cholesterine are largely present, the former more so than the latter.

3. Cholesterine occurs very largely as a secretion in the saliva. No seroline is found.

4. Neither seroline nor cholesterine occurs in healthy urine.

5. Cholesterine occurs quite largely, and seroline in small quantity in jaundice-urine. (These bodies are probably always secreted by the kidneys whenever the liver, through organic or functional derangements—is unable to secrete them from the blood.)

6. Cholesterine and colourless blood disks are secreted or effused from highly congested and inflamed mucous surfaces.

7. Cholesterine is secreted or effused from the peritoneal (serous) membrane in ascites.

8. Cholesterine occurs largely in the fluid of spina bifida tumours.

9. Cholesterine is secreted by the tear glands.

10. Human milk, previous to birth, is rich in cholesterine. No seroline detected in the experiment made.

11. After the birth of the child, and during nursing, the mammary glands secrete largely cholesterine and seroline.

12. The milk of the cow is rich in cholesterine and seroline.

13. Butter, beef, and hog suet contain cholesterine and seroline.

14. The primary forms of the crystals of cholesterine appear to be the cube and rhombic prism; and that of seroline, the very acute rhombic or rhomboidal prism; though usually appearing as simply acicular.

15. Cholesterine and seroline are largely secreted from the blood by the sudorific glands during the sweating stage of intermittent fever. These glands become important blood depurative organs in this disease.

16. The kidneys largely secrete cholesterine in intermittent fever.

17. The kidneys secrete cholesterine in varicella.

18. The kidneys secrete cholesterine in diphtheritic conditions.

19. The kidneys largely secrete cholesterine in the disease known as *diabetes mellitus.*

20. The kidneys secrete cholesterine and seroline in remittent fever.

21. The kidneys largely secrete cholesterine in typhoid fever.

22. Cholesterine is secreted by the sudorific glands in health.

Concluding Remarks.—Cholesterine appears to be essentially a body, secreted from the blood by the glands concerned in digestion; the sudorific glands; those secreting tears and milk; and by the testis of the male and ovary of the female, and by the kidneys in hepatic disease. In the secre-

tions of the testis (seminal fluid), seroline occurs more largely than cholesterine. In the female ova, cholesterine occurs largely, and no doubt has some office to perform in furnishing one important constituent of nourishment in the early fœtal development; before, in viviparous animals, there are any uterine attachments; and in oviparous, before they escape from the ovarian envelopes. Mucous and serous surfaces do not appear to have any power to separate cholesterine from the blood; unless perhaps when under the influence of congestion and inflammation.

As cholesterine occurs so largely in the bile and saliva, two secretions important in digestion, in the female ova, and in the mother's milk upon which the young feed, is it not highly probable that it has some important function to perform in digestion, at all ages; and as nourishment and a soporific in infancy, it only becoming excrementitious proper when this office is ended, and it is changed into seroline (stercorine of Dr. Flint)?

It is believed to be pretty well established, that the true source of cholesterine is the nervous system, of which it is an effete product. From the nervous system it passes to the blood, and is removed from the blood by the liver.

These experiments go to show that the liver is not the only organ which separates this body from the blood. The salivary, tear, mammary, and sudorific glands; and the testis and the ovary come in, each in its peculiar time and place, as important aids. They also show that a portion of the cholesterine of the human body may be taken into it through the food eaten, consisting of milk and butter, eggs, beef, and hog fat, and as there are more or less blood and serous matter in meat, be taken in in that substance also. Still, these facts do not argue against the nervous system being its true original source. They only show that it is formed in the nervous system of animals as well as in that of the human subject; and that in feeding upon animal food, the vascular system may gather this substance from two sources, the nervous system and the food eaten. The nervous system being the source of cholesterine, and the tear glands secreting this body, may explain why the profuse shedding of tears, in health, for any great length of time, so enervates both physically and mentally.

All functional and organic derangements of the liver produce despondency. The dark side of the picture is the one ever prominent. Actions and remarks are perverted, and everything goes wrong. There is a tendency for this condition to relieve itself, especially in the female sex, by a profuse flow of tears. May not this peculiar mental and moral condition, full of sad forebodings, be but a part of that beautiful sympathy of action between different organs of the body, wisely designed, in this instance, to stimulate the tear glands to excited action, in order that they may perform, to some extent, the depurative office of a liver, and thus relieve, partially, a vascular system surcharged with cholesterine?

That weeping relieves sad and despondent conditions is so true that you

everywhere find it proverbial; it is well known that sudden grief does much towards deranging the functions of the liver. The tear glands, through sympathy, appear to come in as little safety-valves to the vascular system on such occasions, as well as on others hereafter mentioned, where the liver is deranged in its functions.

In climates where there is a disposition to "biliousness" ("bilious climates"), there is a tendency to inaction of body and mind; a heavy lethargic feeling prevails; a greater tendency to lounge about lazily and to sleep than in less "bilious" localities; the intellect is inactive and heavy; there is also a tendency to the greater deposition of adeps—a tendency to obesity.

In all diseased conditions of the liver where its normal functions are impaired, there is great dulness and lethargy, with a feeling of melancholy sadness and a disposition often to doze and sleep.

Children while nursing sleep a great portion of the time; they fall asleep while feeding: there is also a remarkable tendency to take on fat. After being weaned they are much more wakeful, and the fatty deposits usually decrease.

The free use of cows' milk as food produces heaviness and a tendency to sleep. The use of eggs largely as food produces a similar lethargic condition.

May we not account for the lethargic influence and the tendency to sleep and obesity of "bilious climates," on the ground of the blood and nervous system becoming and remaining constantly surcharged with cholesterine? In diseased conditions of the liver, when its depurative functions are impaired, we know the blood and nervous system become surcharged with this body, and we know that this surcharged condition produces results similar to those of "bilious climates."

May not the cholesterine and seroline in the food of nursing infants be one cause of their disposition to sleep and to become fat?

May not these bodies also, in milk and eggs, be the cause of their producing heaviness and sleep? When using milk and eggs as food, the liver has to perform the double office of removing the cholesterine formed by the nervous system and that taken into the blood by the food eaten. The result is that the blood and nervous system become surcharged with this body, and we have temporarily the same condition of the system that occurs in "bilious climates." The liver being more or less deranged in its functions in intermittent fever, the sudorific glands come in as blood depurative aids in freeing the vascular system of cholesterine and seroline and other effete matters. This may explain, to some extent, the advantage derived from the free use of diaphoretics as aids in the successful treatment and eradication of this disease.

The secretion of cholesterine from the blood by the kidneys, in intermittent fever, may explain why it is that the free use of diuretics (acetate of potash, &c.) are so beneficial often in its treatment. Without the free use

of diaphoretics and diuretics in the treatment of intermittent fever the disease is seldom so perfectly eradicated from the system as to prevent its reappearance the following spring; while with their proper use, the disease seldom reappears unless the system is again exposed for some length of time to the exciting cause.

The discovery of the fact that the kidneys secrete cholesterine largely in diabetes mellitus may throw some light upon the pathology and therapeutics of this peculiar disease.

Ready process for detecting the presence of cholesterine and seroline.—As the ordinary process for determining the presence of cholesterine and seroline is too lengthy and often beyond the facilities of the practising physician, I here give a simple method, which may answer as a very good approximate means (till a better is suggested) for detecting these bodies in urine and other secretions, and which may often be used with advantage by physicians in their practice as a diagnostic aid. Care should be taken, in the microscopic examination of crystals obtained from the secretions by this process, to not confound those of cholesterine with those of lithic acid and chloride of sodium. As the secretion of these bodies by the kidneys is an abnormal function, one which they only perform when the liver, whose normal office is to secrete these bodies, is deranged, their presence in the urine will usually indicate hepatic derangement.

Place two to four ounces of urine in a six ounce bottle, and add one ounce of pure ether; tightly cork, and agitate by turning quickly the bottle on different ends, allowing the ether to pass backward and forward through the urine, so as to wash it completely—two to five minutes' stirring are usually sufficient;—then allow the ether to rise to the surface, and decant into a clean porcelain or glass dish and evaporate carefully to about ten drops, which place between glass slides and set aside for several hours to crystallize. When this is completed, a microscopic examination with a moderate power will detect the cholesterine plates and acicular crystals of seroline, if present.

In concluding, I take pleasure in expressing my obligations to Drs. Boerstler and Effinger, of Lancaster, Ohio, for valuable aid. They have felt a lively interest in these experiments, and have done me many favours in reporting well-marked cases of disease and in furnishing specimens for examination.

ART. II.—*Clinical Report on Hydro-Peritoneum, based on an analysis of forty-six cases.* By AUSTIN FLINT, M. D., Prof. of the Principles and Practice of Medicine in the Bellevue Hospital Medical College, N. Y., and in the Long Island College Hospital.

THE term *hydro-peritoneum* is applicable only to a purely dropsical or serous effusion into the peritoneal sac. The term *ascites* should perhaps be used in the same restricted sense, but writers are accustomed to apply this term to an inflammatory, as well as a dropsical, effusion. The two forms of effusion being pathologically distinct, they should be studied separately, and I shall limit myself in this article to the latter form; that is, to the non-inflammatory or dropsical effusion. Excluding cases in which liquid (serum and lymph) accumulates in the peritoneal sac as a result of peritonitis, most of the cases in which effusion accompanies carcinomatous deposit will also be excluded, the effusion in these cases being generally due to superadded peritoneal inflammation. Hydro-peritoneum occurs in connection with anasarca dependent, generally, on either renal or cardiac disease, or on the two combined. I shall exclude the consideration of cases in which peritoneal is only an element of general dropsy, and confine myself to hydro-peritoneum considered as a local affection.

The clinical study of hydro-peritoneum offers several interesting questions. The first point to which attention will be directed is the causation of the affection. The affection is secondary, and dependent, as is well known, in a large majority of cases, on disease of the liver. Questions of interest have reference to its connection with hepatic and other morbid conditions, and also to remote causes co-operating with the conditions on which the dropsy is immediately dependent. Other points of inquiry relate to the symptomatology of the affection, to its progress and termination, the prognosis, and the management. I shall consider the subject so far, and so far only, as the questions embraced in its clinical study may be elucidated by the facts contained in the recorded histories of forty-six cases. I have recorded these cases during the last thirteen years. A very large proportion, viz., 37, were observed in hospital practice; 2 cases were in dispensary, and 7 in private practice. They were observed in different places, as follows: 10 cases in Buffalo, N. Y.; 5 cases in Louisville, Ky.; 11 cases in New Orleans, La., and 20 cases in the cities of New York and Brooklyn. Some of the histories are incomplete, the patients having passed from my observation prior to the termination of the affection. The histories vary, also, as regards completeness in details while the cases were under my observation. Such as they are, I shall analyze them and give the results in treating of the different branches of the subject. In a considerable proportion (24) of the cases a fatal termination either occurred while the patients were under my observation, or the death of the patient

was ascertained. A certain proportion of the remaining 22 cases doubtless ended fatally after the patients had passed from my observation. But for convenience of reference I shall include the latter under the head of non-fatal cases. The prognosis will be one of the topics for consideration, and it will be seen in that connection that the instances in which a permanent recovery was known to take place are very few.

CAUSATION OF HYDRO-PERITONEUM.—The causation embraces, as just stated, the proximate morbid conditions giving rise to the dropsy, and the remote causes producing the morbid conditions on which the dropsy immediately depends, and, also, accessory causes. The proximate morbid conditions are to be ascertained mainly by examinations after death. What are the changes found in fatal cases which, from their constancy and character, may be considered as standing in an immediate causative relation to the dropsical effusion? With reference to this question I will proceed to interrogate the fatal cases in my collection in which post-mortem examinations were made.

Examinations after death were made in 14 cases. In each of these cases the liver presented morbid changes. This organ was reduced in volume in 13 of these cases; its volume was increased in one case only. The degree of reduction varied, being in some cases moderate, in other cases considerable, and in one case very great. The weight in all but two of the cases in which the organ was weighed, was diminished below the limit of the variations of health. It was weighed in 10 cases. In one the weight was 3 lbs. 9 oz., which is not perhaps sufficiently below the normal average to be considered as necessarily abnormal. In the remaining 9 cases, the weight varied from 2 lbs. to 3¼ lbs. The organ was not weighed in the case in which the reduction in volume, and, probably, also in weight, was greatest. The gross appearances, aside from the volume, differed considerably in different cases. In 8 cases the organ was not altered notably in form, and the external surface was everywhere smooth. In 1 case the deformity was great although the surface was smooth. In 5 cases the surface was nodulated and the form more or less altered. In one case the deformation was so great that the organ would not have been recognized. Of this case I shall give an account presently. The external appearances in the other four cases are thus described:—

CASE 1. "Surface irregularly nodulated, the projecting portions varying in size from that of a pea to a filbert, and of a dark greenish colour."

CASE 2. "Whole surface studded with nodules varying in size, presenting a hob-nail appearance, the nodulated portions parenchymatous and the intervening spaces fibroid."

CASE 3. "Surface irregular."

CASE 4. "Liver studded with hob-nail eminences."

In one case a little lymph was observed on the convex surface of the

organ. The appearance, on section, of the cut surfaces, is described in several cases as granular. In one case the nutmeg appearance was marked. In one case it is noted that the "cut surfaces presented irregularly shaped portions of variable size and of a dark green colour, with white hard spots and white lines irregularly disposed." The granular portions were in some cases yellow. It is noted in one case that "on section the surfaces present an appearance as if studded with yellow granules of the size of pins' heads." In one of the cases the cut surfaces had a mahogany colour, the lobules not being distinctly visible. The two orders of venous radicles, viz., the intra-lobular and the inter-lobular, were sometimes visible and sometimes not apparent. The condition as regards the amount of blood contained in it varied. Generally but little blood or serum flowed when incisions were made; the organ appeared to be dry and anæmic. But in one case there existed marked congestion, blood flowing freely from the cut surfaces. In most cases it is noted that the organ was unusually dense and resisting. As an exception to this rule in one case it is noted as soft and flabby. The microscopical appearances are noted in a few of the cases. In one of these the "liver cells were small, wasted, irregular in shape, and filled with granular matter." In another case the "liver cells contained oil drops and granular matter." In two cases "the liver cells contained oil drops in abundance." In one of these cases the nutmeg appearance was marked. In another case the "liver cells were reduced in size, containing some oil drops and granular matter." In the case in which the liver was enlarged, the liver cells were filled with oil, and the field of the microscope was crowded with oil drops of different sizes. The records are defective as regards the presence of fibrous tissue in the interlobular spaces. Adhesions to adjacent organs are noted in two cases, and in one of these the organ was excessively contracted and deformed. In both cases the surface was universally adherent to the surrounding parts.

These results go to show the constancy with which, in fatal cases of hydro-peritoneum the affection is associated with disease of the liver. They show the frequency of contraction of this organ. They show that the external surface in a certain proportion of cases is nodulated, but that it is oftener smooth; that the cut surfaces generally present a granular appearance; that the colour varies, being either yellowish, greenish, or of a dark brown mahogany colour; that the two kinds of venous radicles may be, or may not be apparent; that the nutmeg appearance is sometimes marked; that the organ is usually dense and resisting, but may be soft and flabby; that it is generally anæmic, but may be congested, and that it is sometimes morbidly adherent to adjacent parts. Notwithstanding these variations in the gross appearances, the essential morbid change in all the cases would be considered as embraced by the term *cirrhosis*. This term, first employed by Laennec when the minute anatomy of the liver was very imperfectly understood, denotes an appearance by no means uniformly pre-

sent, viz., a yellow colour resembling that of impure beeswax. Laennec considered the appearance of yellow granules as due to a peculiar morbid product, bearing an analogy to the tuberculous deposit; other pathologists, regarding the liver as consisting of red and yellow anatomical elements, attributed the change to an hypertrophy of the latter. These ideas have been abandoned, and, now that the normal structure of the organ has been in a great measure elucidated by the researches of Kiernan and others, much light appears to have been shed on the morbid condition in cirrhosis, and the rationale of the peritoneal dropsy dependent thereon. What is the essential morbid condition in cases of so-called cirrhosis? I will devote a few remarks to this question.

I shall offer nothing with reference to the nature of the lesion in cirrhosis, as conclusions drawn from personal researches. This branch of the subject lies within the domain of microscopy. My remarks will relate to the views held by microscopical observers. There is considerable unanimity of opinion, at the present moment, on this point. The primary change is supposed to consist in the exudation of fibrin into the interlobular spaces, and the production of fibrous tissue in this situation. The microscope reveals an abnormal abundance of this tissue, and, indeed, this is often apparently obvious to the naked eye. The contraction of the organ is attributed to the shrinking of this newly formed tissue, and to the atrophy of the lobules or acini caused by its pressure upon them. The dropsy is explained by the pressure of the exudation and newly formed tissue on the terminal branches of the vena portæ, or the interlobular veins, which occupy the same situation, viz., the spaces between the lobules. Pressure upon these venous radicles produces obstruction within the liver of the portal circulation; congestion of the portal vessels of the abdominal viscera follows, and serous transudation occurs as a result of the mechanical pressure on the coats of the vessels incidental to the portal congestion. The nodulated appearance and deformation of the liver arise from the exudation and newly formed tissue being more abundant, or the shrinking and atrophy being greater in some parts than in others. The anæmic appearance and dryness in many cases, together with the wasting of the liver cells, are other consequences of pressure within the liver. The point of departure being the exudation of fibrin, and, this being the great characteristic of inflammation, the morbid process is considered to be inflammatory. Cirrhosis, thus, according to the pathological view just stated, is neither more nor less than a diffused, subacute inflammation of the connective tissue, which is generally supposed to exist in the interlobular spaces, being an extension of Glisson's capsule. This is an epitome of the pathology of cirrhosis, according to the views of most pathologists at the present time. The rationale just given is not, however, accepted by all pathologists. Dr. Beale, of King's College Hospital, London, has offered a different doctrine.[1]

[1] Beale's Archives of Medicine, No. 2, 1858.

He has been led to conclude that the change commences in the cells contained within the lobules of the liver; the cells near the circumference of the lobules being first affected, and the affection extending gradually from the circumference to the centre. As a consequence of the altered condition of the liver cells, he thinks the attractive force inherent in the organ, which determines the flow of portal blood, is lessened; consequently the interlobular veins shrink, and there is an impediment to the portal circulation through the liver. His explanation of the dropsy is the same as that involved in the commonly received doctrine; it is the result of pressure on the walls of the portal vessels incidental to portal congestion. He bases his opinion of the primary, or essential change, on the number of the interlobular vessels, which remain permeable, as shown by injections; and he supposes that the appearance of an abnormal abundance of fibrous tissue may be due to the remains of the wasted and shrunken vessels and ducts, rather than to the presence of an adventitious tissue. According to this doctrine, the pathological process in cirrhosis is not inflammatory, but a degenerative change, having its point of departure in the secreting cells of the liver. I shall not enter into any discussion of these conflicting views. The question is to be settled, not by discussion, but by continued microscopical researches.

Contraction of the liver, apparently from external compression, may give rise to hydro-peritoneum. One of the cases afforded an example of this fact. The following are the important points in the history of this case:—

Caroline E., aged 20, of small size, spine curved, sexual system, including mammæ, undeveloped, was attacked with hæmatemesis, December, 1850. The hemorrhage was copious but ceased after six hours. She was attended by the late Dr. Wilcox at Buffalo. Another attack of hæmatemesis occurred in January, 1851. In February, 1851, she was supposed to have peritonitis, and mercury was given to ptyalism. About this date the accumulation of liquid in the peritoneal sac commenced. In March, 1851, she had another attack of hæmatemesis. The peritoneal dropsy increased in spite of the use of digitalis and the bitartrate of potassa; and she was tapped in the following month of April. She was tapped again in May following. Vomiting then became a prominent symptom, and she died in June, 1851. On opening the abdomen, and giving exit to a large quantity of transparent liquid, the parts surrounding the liver were closely and firmly adherent to this organ, so as to completely conceal it from view. The adhesions were evidently of long standing. There was no evidence of recent peritonitis. The liver, when the adherent parts were dissected from it, was found to be greatly reduced in size, irregularly lobulated, and so deformed that the organ would not have been recognized. The weight is not noted. The internal structure was not examined. The ovaries were small, smooth, and transparent, containing no corpora lutea. The uterus was extremely small. The patient had never menstruated.

In this case the adhesions of the liver to the surrounding parts were

manifestly of older date than the dropsy; and it is fair to conclude that the exudation of lymph on the surface of the organ had contributed to the atrophy by compression. But it is also to be inferred that disease of the liver existed prior to the serous inflammation, inasmuch as circumscribed peritonitis does not occur, except as secondary to an affection of the viscera with which the affected portion of peritoneum is connected.

An important point of inquiry relates to the co-existence of affections of other organs with disease of the liver. What other affections are liable to be concerned, proximately or remotely, in the causation of hydro-peritoneum? This question applies particularly to affections of the spleen, the heart, and the kidneys. The histories of the fatal cases are to be interrogated with reference to these organs.

As regards the *spleen*, in nine of the histories it is not mentioned. I am certain that in most, if not all these cases, this organ was neither notably increased nor diminished in volume. In one case it is noted to have been small and wrinkled. In two cases the volume was much increased, being larger, and also greater in weight than the liver. In two cases the weight is given, being in one 2 lbs. 13 oz.; and in the other 18 oz. These facts show that notable enlargement of the spleen is the exception rather than the rule, and that the organ is sometimes diminished in size. There is no ground, so far as these facts are concerned, to suppose that enlargement of the spleen plays an important part in the production of peritoneal dropsy. And when it is considered how often enlargement of the spleen occurs as a sequel of intermittent fever without the occurrence of dropsy, we must regard it as an error to include this among the causative conditions of hydro-peritoneum. It is so included by most authors of works on the practice of medicine. The infrequency of enlargement of the spleen in fatal cases of cirrhosis would not be anticipated, and I suspect it is opposed to a general impression among practitioners. It is certainly a reasonable *à priori* inference that a degree of obstruction to the portal circulation within the liver, giving rise to congestion of the abdominal viscera, sufficiently to occasion dropsical effusion, should induce sufficient congestion of the spleen to increase its size. The fact, however, that the spleen is enlarged in only a small proportion of cases, shows other circumstances than portal obstruction to be requisite in the production of the enlargement when it does occur.

The condition of the heart is not mentioned in the notes of the autopsies in two cases. Of the remaining ten cases, in two there existed universal, old pericardial adhesions. In one of these two cases the heart was enlarged, weighing 14 oz.; in the other case the organ was below the normal size. There was rigidity of the aortic valves and enlargement (weight 11 oz.) in one case. The heart is noted as healthy in all the remaining, viz., in seven cases. These results do not go to sustain a common impression that disease of the heart precedes and has a causative relation to cirrhosis

of the liver. When these two organs are affected together, the association is probably a coincidence only. The physical signs enabling us now to determine positively the existence or absence of cardiac lesions, the question as to the condition of the heart in cases of hydro-peritoneum, will come up again when the histories of the non-fatal cases are considered.

The condition of the kidneys is noted in all but three, that is, in 11 cases. These organs were considered to be healthy in 5 of these ten cases. In the remaining 6 cases they were manifestly diseased. In one case it is simply stated that they presented the appearance of "incipient granular degeneration." In all the other cases they were enlarged and granular. In 2 cases fatty degeneration was marked. Coexisting disease of the kidneys, thus, it would seem, occurs in a sufficiently large proportion of cases to show either some pathological connection between the affection of these organs and of the liver, or that both affections are effects of the same causative conditions. The existence of a relation of causation between the two affections, and, if such a relation exists, the question whether the affection of the kidneys proceeds from disease of the liver, or *vice versa*, are to be determined by ascertaining in a sufficiently large collection of cases which of the affections occurs prior to the other. The facts noted with respect to the autopsies in the fatal cases now under consideration, are insufficient to shed light on these points. The same questions, however, will occur in connection with the histories of the non-fatal cases, inasmuch as the presence of albumen in the urine may be considered as a pretty uniform criterion of the existence of disease of the kidneys. It is worthy of remark that in none of the cases in which disease of the kidneys coexisted, were these organs contracted, a fact which renders the absence of albumen in the urine more reliable as evidence, in cases of hydro-peritoneum, that the kidneys are not diseased, since it is chiefly in cases of contracted kidneys that we meet with the exceptional instances in which albuminuria is wanting.

As regards other organs than the spleen, heart, and kidneys, there existed double pleurisy in one case, with considerable effusion of lymph and serum in both sides. In this case there were old pericardial adhesions, and the kidneys were diseased. In another case there existed œdema of the lungs. In this case, also, old pericardial adhesions existed. In one case there were ulcerations in the large intestine. In one case there was a deposit of lymph beneath the arachnoid on the superior portion of the cerebral hemispheres. The lungs were stated to be healthy in 5 of the cases.

Reviewing the foregoing results, the only constant lesions were in the liver. Undoubtedly this organ is affected in the vast majority of fatal cases of hydro-peritoneum; and undoubtedly, in the vast majority of cases, the affection of the liver is of that kind known as cirrhosis. Enlargement of the liver from fatty or other deposit, was found in only one of the cases.

The purely fatty liver certainly does not give rise to peritoneal effusion. Having met with a large number of examples of the latter in hospital practice, I am warranted in speaking thus positively on this point. But that an abnormal amount of fatty deposit may coexist with the changes giving rise to peritoneal dropsy is undoubtedly true, although it is an exception to the rule. This was the fact in two of the cases analyzed; and in one of these cases the amount of fatty deposit coexisting with cirrhosis was sufficient to cause considerable enlargement of volume, the weight being 6 lbs. 6 oz. Whatever views may be held respecting the point of departure, or the nature of the changes in cirrhosis, it seems to be clear that the dropsy in fatal cases is due to congestion of the portal system arising from obstruction to the free passage of the portal blood through the liver. Fatty deposit does not involve this obstruction sufficiently to produce dropsy; and this remark holds good with respect to carcinoma of the liver, and of the deposit known as lardaceous, certainly in the majority of cases. It is easy, however, to understand that portal obstruction and consequent congestion, sufficient to produce dropsy, may occur independently of any hepatic lesion. Obstruction of the vena portæ may arise from a coagulum within the vein, or, by outward pressure from a tumour pressing upon the vein, examples of which have been reported. That enlargement of the spleen may give rise to hydro-peritoneum is not probable. In cases of dropsy attributed to this organ, it is fair to presume that coexisting disease of the liver or some other causative condition was overlooked. Disease of the heart is not associated sufficiently often with cirrhosis to assume that any pathological connection exists between the two affections when they are found together: the union is to be regarded only as a coincidence. Disease of the kidney, on the other hand, is associated in fatal cases sufficiently to suggest the probability of some pathological connection, but whether one conduces to the other, and, if so, which stands to the other in the relation of causation, or whether both are in the relation of effects of a common cause, remain to be ascertained. Other affections found in fatal cases, such as meningitis, pleurisy, pulmonary œdema, doubtless occur as coincidences.

It is to be borne in mind that thus far the causation of hydro-peritoneum has been considered with reference to the facts obtained after death. Of course, attention has been limited to fatal cases. The source of the affection in the few cases which end in recovery, will be one of the points of inquiry in proceeding now to consider those facts pertaining to the histories during life which had a bearing on the causation. These facts are to be considered with reference to their causative influence either proximately or remotely, in other words, as concerned immediately in the production of the dropsy, or as conducive to abnormal conditions on which the dropsy is immediately dependent. Directing attention, first, to the most frequent and efficient

of the remote causes, I will interrogate the histories respecting the habits of the patients as regards the use of alcoholic stimulants.

Of 20 fatal cases, in the histories of which the habits of the patients as respects drinking are stated, in 17 intemperance was acknowledged. In only three of these cases was intemperance denied; and in one of these 3 cases the patient admitted the habit of drinking, but not to excess. Of 20 non-fatal cases, in 12 intemperance was acknowledged. In 6 cases intemperance was denied, but in 3 of these 6 cases moderate drinking was admitted. In 2 cases only was it certain that the patients were not in the habit of drinking, in one case the patient being a child twelve years old. Thus, of 40 cases, fatal or non-fatal, intemperance was acknowledged in 29; in 4, moderate drinking was acknowledged, leaving 7 cases in which the use of alcoholic stimulants was not ascertained; and of these 7 cases in 2 only was it certain that alcoholic stimulants were not used to excess. Of the 29 cases in which intemperance was acknowledged, in 24 the form of alcoholic stimulant used was noted, that is, whether spirits, wine, or malt liquors. In all these cases, with a single exception, spirits were used. In the excepted case the patient stated that he drank only beer.

As regards the mode of drinking, of the 23 cases in which spirits were used, in 15 information is noted in the histories. And in all of these 15 cases, the mode of drinking was, to take raw spirits at different periods of the day, before breakfast, and at other times, on the empty stomach, a little water being drank generally after the spirits. In the remaining 8 cases, the histories contain no information on this point. This result is striking, and accords with the view which other clinical observers have entertained, viz., that the habit of drinking spirits undiluted on an empty stomach, leads to the production of cirrhosis of the liver. So far as the facts are recorded with reference to this point in this collection of cases, this was the rule, without a single exception, among the patients addicted to spirit-drinking.

As regards the length of time during which the habit of spirit-drinking had existed, facts are noted in 18 cases. In all, the habit had existed for a long time. In one case the duration was 25 years; two patients stated that they had drank daily from boyhood; in 4 cases the duration was 10 years; in one case 8 years, and in the remaining cases it is simply noted that the habit had existed for several years, or for a long period. In 5 cases it is noted that, for some time prior to the development of hydro-peritoneum (in the one case two, and in the other case three months), the patients had drank comparatively little, having been so situated as not to be able to obtain liquor. This is interesting as going to show that other causes than the continued use of spirits may determine the epoch of the occurrence of dropsy. The kind of spirit drank is noted in 11 cases; and in 9 of these it was whiskey, in one case it was brandy, and in one gin and

brandy were drank. The preponderance of cases in which whiskey was used may be readily explained by the fact that this is the liquor commonly drank by persons in the station to which most of the patients belonged.

The foregoing results prove the agency of the prolonged use of spirits in the causation of hydro-peritoneum. They warrant the conclusion that when the dropsy depends on cirrhosis of the liver, the abuse of alcoholic stimulants is to be inferred. In all the fatal cases in which an autopsy was made, and the existence of cirrhosis thus positively ascertained, intemperance was known to have existed, save in the case of greatly contracted liver with old and firm peritoneal adhesions; in this excepted case the habits of the patient were not noted, but it may be presumed they were good. The diagnosis of hydro-peritoneum dependent on cirrhosis, thus, renders it altogether probable that patients have been addicted to the use of alcoholic stimulants; and, in hospital practice, it is generally safer to rely upon this law of etiology than to trust to the statements of patients when the habit of drinking is denied. This remark is especially applicable to females, whose statements with regard to habits, as experience has taught me, are much less reliable than those of male patients; the explanation, probably, being that the sense of shame in acknowledging vicious habits is greater in females than in males. The frequent occurrence of cirrhosis in drunkards is not new, but according to some writers this affection occurs not infrequently in those who are not intemperate. For example, Dr. Wood, in his work on Practice, says that a large proportion of the patients who have come under his notice have been of temperate habits. This assertion is at variance with the facts which have been presented, and I can only account for it by supposing that Dr. Wood has been deceived by patients with respect to their habits.

The inquiry arises here, How does alcohol act on the liver to produce cirrhosis? The explanation now commonly received is, that the alcohol passing readily into the portal blood, and carried at once to the liver, gives rise to inflammation of a low grade in the interlobular spaces, and that exudation occurs in this situation as a result of inflammatory action. This explanation is supposed to be sustained by the mode of drinking shown to conduce especially to cirrhosis, viz., taking raw spirits on an empty stomach. The explanation is plausible, but it must be considered as hypothetical. The facts are perhaps not less consistent with the hypothesis of cirrhosis being a degeneration taking its point of departure from the cells of the lobules.

What causes may co-operate with the abuse of alcohol in giving rise to hydro-peritoneum, and how is the affection to be accounted for in exceptional cases which end in recovery? There are reasons, derived from the clinical history of the affection, for believing that when the dropsy is dependent on cirrhosis, and the cirrhosis on the habit of spirit-drinking, auxiliary causes are often involved. Were it not so, the prognosis in cases

of dropsy in the intemperate would be even more unfavourable than it is. I may mention as a reason for believing that auxiliary causes are often involved, that, when the dropsical effusion begins, it is apt to increase rapidly, leading in a short time to distension of the abdomen. This would not be expected were the dropsy dependent exclusively on the cirrhosis which has been slowly going on for months or even years. It is not probable that the hepatic lesions undergo any marked increase at the time when dropsy occurs; what then determines the time of its occurrence, and why should it be developed to so great a degree in so short a period as is frequently observed? Another reason which may be mentioned is, the frequent occurrence of œdema of the lower extremities prior to the development of dropsy of the peritoneum. It will be seen when we come to consider the clinical history of the affection, that such is the fact. And this fact points to the existence of other causes of dropsy than the hepatic lesions. Finally, the occurrence of cases of hydro-peritoneum ending in recovery, cases which, although rare, do occur, is proof that the affection may arise independently of cirrhosis or any other irremediable structural lesions. I shall proceed to interrogate the histories with reference to any circumstances showing causative influences aside from the effects of alcoholic stimulants. I shall reserve the pre-existence of cardiac and renal disease for subsequent inquiry.

In 22 cases the histories show affections immediately antecedent to the dropsy, which may fairly be supposed to have operated as auxiliary causes. The facts in these cases are as follows: In 10 cases the dropsy followed intermittent fever, the patients having been subject to relapses of this disease for a greater or less period. In several of these cases the relapse immediately preceding had not been arrested, and the patients had suffered from the disease for several weeks. In 2 of these cases the dropsy was developed after the patients had been admitted into hospital. In one case the patient had, in addition, chronic ulcers of the leg dependent on syphilis, and in one case an attack of epidemic cholera had preceded the intermittent fever. In 3 cases the dropsy was preceded by hæmatemesis, the quantity of blood vomited being considerable. In 2 cases the patients were females, and had been confined shortly before the development of the dropsy. One of these cases ended in recovery, and in this case it was certain that the patient was not addicted to the use of alcoholic stimulants. Diarrhœa preceded the dropsy for several weeks in 2 cases. In one case the patient was admitted for dysentery, and the dropsy was developed after his admission. In one case the patient was admitted with pneumonia, and the dropsy was developed during convalescence from that disease. The patient also had chronic ulcers of the leg. In one case the dropsy was developed during convalescence from rheumatism; and in one case during convalescence from a fever of a month's duration, supposed to be typhoid fever. In one case the patient was admitted for a syphilitic eruption, and

was nearly ready to be discharged from the hospital when the dropsy made its appearance.

I think it is very probable that among the other cases than the 22 just referred to, antecedent affections, or circumstances may have existed in some, to which the dropsy was measurably attributable, for many of these the histories are defective as regards the events or condition of the patients prior to the development of the dropsy. But, making no account of this supposition, in nearly one-half of this collection of cases it may be assumed that the dropsy was proved by morbid conditions associated either with cirrhosis of the liver, or with whatever may have been the affection on which the dropsy was immediately dependent.

The antecedent affections were remotely concerned in the causation of the dropsy, acting, as may be supposed, by deteriorating the blood, weakening the circulation, or lowering the vigour of the body. Had these associated morbid conditions not existed, the occurrence of the dropsy might have been, to say the least, postponed. This is an important consideration in connection with the treatment, and the course of the disease in certain cases will be found to sustain the view just presented. It is worthy of note that in 5 cases patients were received into hospital for antecedent affections, the dropsy being developed after admission. It is to be added that the 22 cases are divided equally among those which were fatal and those which were non-fatal, *i. e.*, eleven in each division.

In the foregoing interrogation with respect to affections, etc., antecedent to the dropsy, I did not embrace cardiac and renal disease. In the cases in which disease of the heart or kidneys coexisted with the dropsy, it is fair to infer that the former preceded the latter; and it is also to be inferred that, in some of the cases, at least, the disease of the heart and kidneys contributed to the development of the dropsy. Directing attention, first, to the coexistence of disease of the heart, it has been seen that, of ten of the fatal cases in which post-mortem examinations were made (the condition of the heart being noted in only these ten cases), this organ was the seat of disease in but three cases. In one of these three cases pericardial adhesions, existing without enlargement, were probably innocuous; in the other two cases, the heart being enlarged, some influence in the production of the dropsy may be suspected. Of the cases, fatal and non-fatal, exclusive of those in which autopsies were made, the existence, or otherwise, of cardiac disease as determined by means of physical exploration, was noted in twenty-two. Of these 22 cases in 15 there were no physical signs of disease of the heart. Of the remaining 7 cases, in 4 a systolic murmur existed at the base, and the organ was not enlarged. Eliminating these 4 cases as cases in which the existence of organic lesions was doubtful, and in which the lesions were innocuous, if they existed, since there was no enlargement, there remain 3 cases. In these 3 cases there were mitral lesions and enlargement of the heart, and, hence, some influence in the production of the

dropsy may be suspected.[1] Thus, of 32 cases in which the condition of the heart was noted, as determined either by autopsical examination or by physical signs, in 5 cases only were there lesions involving enlargement of this organ. Here we have again exemplified the fact that disease of the heart is not associated sufficiently often with the morbid condition on which hydro-peritoneum is immediately dependent (in cirrhosis of the liver in the vast proportion of cases), to show the existence of any pathological connection between the two. When the two are associated, however, it is not improbable that the disease of the heart may act as an auxiliary cause in the development of the peritoneal dropsy.[2]

As regards coexisting disease of the kidneys, it will be recollected that of 11 autopsies in which the condition of these organs is noted, they were considered to be diseased in six. Hence it was surmised that there might have been in these cases some pathological connection between disease of the kidneys and cirrhosis of the liver, consisting either in a dependence of one upon the other to a greater or less extent, or in both being effects of the same causes. It was stated that the question of a pathological connection would again come up in connection with the cases in which autopsies are not embraced in the histories, inasmuch as the presence of albumen in the urine may be considered as evidence of disease of the kidneys, and *vice versa*. An interrogation of the cases with reference to albuminuria leads to the following results: in 18 cases (six fatal cases in which autopsies were not made and twelve non-fatal cases), the histories contain information on this point, and in not one of these cases was the urine found to be albuminous. In most of the other cases the urine was undoubtedly tested for albumen, and, had it existed, the fact would have been noted, so that the absence of albuminuria may be inferred in these cases. Of the 11 fatal cases in which autopsies were made, the kidneys, as just stated, were considered as diseased in 6. Of these 6 cases, the histories state that albumen was not found in 3; in 1 case the urine was slightly albuminous, and in 1 case the condition of the urine was not noted. Of the 5 cases in which autopsical examination revealed no disease of the kidneys, in all albumen was not present in the urine.

These facts are interesting in connection with the results of the examinations after death as regards disease of the kidneys. Taking albuminuria as

[1] In two of these 3 cases the ages were respectively 12 and 13 years.

[2] It is perhaps generally supposed that cirrhosis and disease of the heart are frequently associated. M. Becquerel, in his essay on cirrhosis (*Archives Générales*, 1840), stated that of 42 cases disease of the heart coexisted in 21. But of these 21 cases in 13 the cirrhosis was considered to be in the first degree, giving rise to trifling symptoms or none whatever. Dr. Budd (on diseases of the liver), says "it is perhaps fair to infer that, in some of these cases, M. Becquerel mistook for the first stage of cirrhosis the nutmeg appearance of the liver produced by partial congestion of the capillaries."

a diagnostic criterion of disease of the kidneys, the latter very rarely coexists with hydro-peritoneum, or with the affection existing in the great majority of cases, viz. cirrhosis of the liver. The results of autopsical examinations and of examinations of the urine for albumen are not in accordance, the former going to show a large, and the latter a very small proportion of cases in which disease of the kidneys coexists. And of the 6 cases in which the kidneys were found to be diseased after death, in 3 the urine is noted to be not albuminous. It would seem, from these facts, as if disease of the kidneys is apt to coexist with hydro-peritoneum without being manifested by albumen in the urine.

On what pathological conditions is hydro-peritoneum dependent when it ends in recovery? Cirrhosis of the liver being an incurable lesion, when the dropsy is dependent thereon, recovery is hardly to be expected. It will be seen hereafter that, although this lesion in all probability exists, an apparent recovery sometimes takes place; that is, the dropsical effusion may be removed, and a reaccumulation not occur for a greater or less period. But the dropsy sometimes occurs under circumstances which render it probable that cirrhosis does not exist, and the recovery may be complete and permanent. I have met with a striking instance of this kind. The following are the important facts contained in the history:—

Mrs. W., aged about 24, had had two children, the youngest being 5 or 6 months old, which she was nursing. The patient came under my observation in March, 1861. She was under the care of Dr. Dudley, of Brooklyn. Enlargement of the abdomen had been first observed shortly before I saw her. The enlargement was evidently due to liquid in the peritoneal sac. The amount of liquid was sufficient to cause considerable enlargement, but not to render the abdominal walls tense. She complained of slight pain over the false ribs on both sides. The abdomen was not tender on pressure. The spleen appeared to be moderately enlarged; the liver seemed to be neither enlarged nor contracted. She had febrile paroxysms occurring irregularly, ushered in by chilly sensations and followed by sweating. These speedily ceased under the use of quinia in full doses. There was no œdema of face or limbs. The urine was not albuminous. She was moderately anæmic. There were no symptoms or signs of pulmonary or cardiac disease.

When the febrile paroxysms just mentioned were arrested, the dropsy diminished, but, in a short time, the accumulation of liquid was greater than before. Elaterium, given to produce free hydragogue operations, caused the dropsy temporarily to disappear, but the patient was greatly weakened by this remedy. She was treated with the iodide of potassium, and the citrate of iron and quinia, with generous diet. Under this treatment the affection remained stationary up to the latter part of June. She was then advised to begin to go out of doors, which, owing to general weakness, she did at first with considerable difficulty. From this time she

began to improve. Shortly afterward she went into the country and all remedies were discontinued. She continued to improve; and during the summer the dropsy entirely disappeared and she regained perfect health, which she has preserved up to this time. The patient was also seen in consultation by Prof. Willard Parker.

This case shows that hydro-peritoneum may occur, persist for several months, then disappear, and complete recovery ensue. The position and character of this patient rendered it certain that the usual source of cirrhosis, viz., use of alcoholic stimulants, was not involved in the causation. The supposition of subacute peritonitis is hardly admissible, in view of the absence of the local symptoms of inflammation and of pulmonary tuberculosis, together with the abundance of the liquid effusion. I confess an inability to offer any explanation in this or other similar instances; I cite the case chiefly in illustration of the fact that the affection may depend on causative conditions which are temporary and lead to no serious results. This fact is important to be considered in connection with the prognosis in certain cases; but, unhappily, examples like the one just cited are exceedingly rare. Doubtless the anæmia and general debility incident to lactation contributed to the development of the dropsy in the case just cited, but there must have existed, in addition, some pathological condition determining the seat of the affection.

It remains to consider the influence of age, sex, and civil condition on the causation. The age is stated in 43 of the cases. The greatest age is 69 years, one patient only being as old as this. The next highest is 60, the next 53, two patients being as old as the latter age. With the exception of one patient, who was 51, all the remainder were 50 or under. In 8 cases the ages were between 40 and 50; in 13 cases between 30 and 40; in 10 between 20 and 30; in one case the age was 12, and in another case the age was 13 years. In the two cases last enumerated, there existed mitral lesions with enlargement of the heart. Hydro-peritoneum, thus, occurs in the great majority of cases over 20 and under 50 years of age, the larger proportion of cases being between 30 and 40 years. These results are consistent with the fact that in most cases the affection is due to the more or less prolonged use of alcoholic stimulants. Habits of intemperance, if formed prior to 20 years of age, have not been sufficiently prolonged to produce cirrhosis, and it is rare for persons to become intemperate after the age of 50.

As regards sex, of 45 cases, 36 were males and 9 females. The large preponderance of the former is doubtless owing to the proportionately greater prevalence of intemperance among males than among females.

In the occupations of the patients nothing appears to show any special influence derived from this source. Sixteen were labourers, three were carpenters, two were brewers, and, among the remainder, the following occupations had each a single representative: storekeeper, carver, butcher, clerk,

tailor, and tinsmith. In the great majority of the cases having been observed in hospital practice, very few were from the higher walks in life. But that the great majority of cases were observed in hospitals, is owing to the comparative infrequency of the affection among the better class of patients in private practice. This is, doubtless, owing to the dependence of cirrhosis on spirit-drinking, and in a measure, at least, on a mode of spirit-drinking which is much more in vogue among the labouring than among the intemperate portion of the so-called better classes of society. The questions might be raised whether spirituous liquors of a bad quality may not especially lead to cirrhosis, and whether the use of such liquors may not be a reason for the prevalence of the affection among the labouring classes. In other words, is cirrhosis purely an effect of alcohol, or does it proceed, to a greater or less extent, from other principles contained in spirituous liquors? I must content myself with raising these questions. I am not prepared to answer them. I have heard it said by medical men in Kentucky that the pure form of whiskey made in that State never causes cirrhosis, but I cannot vouch for the correctness of this statement.

Leaving, now, the consideration of the causation of hydro-peritoneum, the conclusions drawn from the results of the analysis of the cases in this collection may be summed up as follows:—

The immediate causative condition in fatal cases pertains to the liver. This organ, as a rule, is contracted and diminished in weight; the surface may be either smooth or nodulated (hob-nailed), and it is sometimes notably deformed. Contraction and deformity may be associated with extensive peritoneal adhesions; the changes in size and form being, then, in a measure at least, attributable to external pressure.

The condition of the liver, giving rise to hydro-peritoneum, except in cases in which it proceeds from external pressure, is generally a result of the prolonged abuse of alcoholic stimulants; and this result follows the habitual drinking of spirits, especially when taken raw, or but little diluted, upon an empty stomach.

Although the spleen is enlarged in a certain proportion of cases, in connection with the altered condition of the liver generally known as cirrhosis, there is no ground for supposing that the splenic enlargement is a cause of the dropsy. It may be doubted whether enlargement of the spleen alone ever gives rise to hydro-peritoneum.

Disease of the heart is found too rarely associated with cirrhosis of the liver to infer any relation of cause and effect between the two affections. When the two are associated it is probably a mere coincidence. Coexisting disease of the heart, however, may contribute to the dropsy as an auxiliary cause. Existing independently of disease of the liver, disease of the heart gives rise to hydro-peritoneum only as an element of general dropsy.

Disease of the kidneys is associated with cirrhosis oftener than disease of the heart; but whether any relation of cause and effect exists between

the two affections, or whether both proceed from the same remote cause or causes, is to be determined by the analysis of a larger collection of cases. Coexisting disease of the kidneys may contribute indirectly to hydro-peritoneum by inducing hydræmia and impairing the vital forces. Existing independently of disease of the liver, disease of the kidneys gives rise to hydro-peritoneum only as an element of general dropsy.

Various affections, coexisting with cirrhosis of the liver, such as intermittent fever, hæmatemesis, diarrhœa, may determine the epoch when hydro-peritoneum becomes developed, or tend to increase the dropsical effusion. The dropsy may follow convalescence from some disease, such as dysentery, typhoid fever, and pneumonia. It may occur during lactation, or shortly after confinement. The dropsy, under these circumstances, is determined or promoted in consequence of the effects on the blood and vital forces.

Hydro-peritoneum occurs, although very rarely, when not dependent on cirrhosis of the liver, or any other incurable lesions, cases ending in recovery. The morbid condition or conditions on which the dropsy is immediately dependent in these cases must be left unexplained.

Hydro-peritoneum occurs much oftener among males than females. The larger proportion of patients are between 30 and 40 years of age; it occurs very rarely under 20 or over 60 years. Its causation is not specially favoured by any particular occupation.

SYMPTOMATOLOGY OF HYDRO-PERITONEUM.—Of the important symptoms which make up the clinical history of hydro-peritoneum, the first claiming notice are those which relate to the abdomen and digestive system. After having considered these, the symptoms referable to other anatomical systems, viz., tegumentary, circulatory, urinary, and nervous,[1] will respectively claim attention.

Symptoms referable to the abdomen and digestive system.—Abdominal pain rarely precedes or accompanies the dropsical effusion. In four cases only have I noted the existence of pain; situated, in two cases, in the right hypochondrium, and in the other cases more diffused. In most of the histories nothing is stated respecting this symptom; but in several the absence of pain is noted. Transient colic pain would not be deemed of sufficient importance to record; but this is not of frequent occurrence. In one case a sense of soreness in the abdomen preceded the dropsy. In none of the other cases is it stated that soreness, or tenderness on pressure existed.

[1] With respect to the consideration of symptoms, I wish to repeat, that several of the histories are incomplete, the cases having been only for a time under observation, and the records sometimes not embracing all details even when the cases were observed during the whole progress of the affection. The enumerations are to be considered as only approximations to accuracy as regards the frequency with which the different symptoms occur. In view of the fact just stated, I shall devote but a little space to the symptomatology.

Patients sometimes shrink when deep, strong pressure is made with a view to determine whether the spleen or liver be enlarged; but, as a rule, no more tenderness or soreness exists than is attributable to the tension of the abdominal walls from the pressure of the liquid. The absence of pain, soreness, and tenderness, is one of the points in the differential diagnosis of hydro-peritoneum and peritonitis with effusion. Another point is the absence of tension of the abdominal walls from tonic rigidity of the muscles. In hydro-peritoneum the walls are tense only as a result of distension from the amount of effused liquid. I may mention here that pain in the right shoulder is noted in two cases.

The enlargement of the abdomen from the accumulation of liquid, was either great or considerable in most of the cases. In four cases only was the quantity of liquid moderate. It may be laid down as a rule that, when hydro-peritoneum occurs, the dropsical effusion almost invariably increases so as to produce notable distension, and in the large proportion of cases the abdominal walls become more or less tense. Another interesting fact with regard to the effusion is, the rapidity with which it takes place. In the majority of cases, when the dropsy once commences, it goes on rapidly, and in a short time the abdomen becomes considerably or greatly enlarged. In the abstracts of fifteen of the histories made for this analysis, the rapid accumulation of liquid is stated; that is, considerable or great enlargement taking place within a period varying from two months to a few days. In one case the effusion increased from a moderate to a large amount in the course of a few hours, occasioning sudden dyspnœa to such an extent as to require immediate tapping; and this occurred a second time in the same case. I have already alluded to the frequency with which the dropsical effusion becomes rapidly large in amount, as a fact going to show the co-operation of other circumstances than the hepatic obstruction due to the structural lesions in cirrhosis, in the causation of the dropsy. These lesions are doubtless slowly produced, and it is not probable that they undergo a sudden and rapid development at the time when the dropsy occurs and is rapidly increasing. Is it not probable that, after a certain amount of effusion has taken place, the pressure of the liquid upon the liver, by adding to the obstruction to the portal circulation in this viscus, increases the effusion? This question will again come up in connection with the non-occurrence of effusion, in certain cases, for a greater or less period after the liquid has been removed by tapping.

It has been seen that in all the fatal cases but one in which examinations after death were made, the liver was more or less diminished in volume. In the histories of the remainder of the cases, fatal or non-fatal, enlargement of the liver is noted in two cases. In these cases the lower margin extended 2½ or 3 inches below the false ribs, as ascertained by manual examination through the abdominal walls. Enlargement of the liver, if the abdomen be not greatly distended, may generally be ascertained by palpa-

tion, and had it existed in other cases the fact would doubtless have been noted. Contraction of the liver, on the other hand, cannot be so well determined by manual examination. Is it not determinable by percussion? With regard to the answer to this question, I believe the general impression to be incorrect. The space between the pulmonary resonance above and tympanitic resonance from the transverse colon below, is supposed to represent the vertical diameter of the liver. That this is not so, is easily demonstrated in certain cases in which enlargement of the liver is perceptible by the touch. I have been accustomed to point out at the bedside a discrepancy, sometimes of several inches, between the positive evidence afforded by palpation of the situation of the lower margin of the liver, and the apparent evidence afforded by percussion. The tympanitic resonance from the colon may be propagated for a considerable space above the lower margin of the liver, and without any appreciable diminution of intensity. This resonance is not reliable as evidence of the situation of the lower margins of the liver. The distance between the pulmonary and tympanitic resonance is only an approximation to the vertical diameter of the organ. Not infrequently when the liver is contracted, the pulmonary and tympanitic resonance almost and even quite meet. I have for some time ceased to consider as accurate the measurement of the liver by means of percussion.

The same remarks will apply measurably to the spleen. The evidence afforded by tympanitic resonance of the lower and anterior borders of this organ is unreliable for the same reason, viz., the organ transmits readily tympanitic resonance. The upper border of the organ as well as that of the liver, is indicated by the pulmonary resonance, which is not, like the tympanitic, propagated more or less beyond the border. Enlargement of the spleen, if considerable, can generally be felt. Exclusive of the cases in which examinations were made after death (to which reference has already been made), this organ is noted as enlarged in only one case. Directly after tapping, when the abdominal walls are greatly relaxed, explorations for the liver and spleen may be made with most facility. At this time, the liver may be felt to be abnormally hard and nodulated even when contracted, by the fingers pressed up and under the false ribs.

Hæmatemesis is noted in six cases. But in three of these cases it preceded the development of the dropsy, and did not recur afterward. In two cases it occurred repeatedly. Both of the latter cases were fatal; indeed, in all these cases, save two, a fatal result has taken place; while the cases under my observation and the two excepted cases have recently come under observation, and will probably end fatally ere long. In two of the cases melæna also occurred, and in two cases melæna occurred without hæmatemesis. Vomiting (exclusive of hæmatemesis) is noted in only two cases, and in both of these it was a prominent symptom. Diarrhœa is noted as a symptom, more or less prominent, in eight cases. On the other hand,

constipation is noted in several cases; but in the larger number of cases neither of these symptoms was present. Diarrhœa can hardly be regarded as a favourable symptom in cases of hydro-peritoneum; in most of the cases in which it occurred, the progress of the affection was unfavourable. It might be deemed *à priori* a desirable event, so far as the dropsy is concerned, the congested portal vessels being relieved, in a measure, by transudation through the intestinal mucous membrane; the mode of relief, in fact, being the same as when hydragogue cathartics are given. Clinical observation, however, shows not only that diarrhœa occurs oftener in cases which progress unfavourably than in those which pursue a favourable course; but that measures which succeed in relieving the diarrhœa appear, sometimes at least, to exert a favourable effect on the dropsy. In one of the cases it is noted that the dropsy diminished notably after a troublesome diarrhœa had been relieved at one time by bismuth, and subsequently by opium.

Loss of appetite and disinclination for food existed in many of the cases while the patients were under observation, and especially when the disease was progressing toward a fatal termination. Some patients retained a tolerable and some a good appetite. Generally, when the dropsy was sufficient to distend the abdomen, patients complained of a sense of fulness after taking food. In several instances this was a source of complaint when the abdomen was distended, and, after the liquid was removed by tapping, the patients were able to eat freely without inconvenience. In the history of one case it is noted that the gums were spongy, and hemorrhage occurred in this situation as in scorbutus. The superficial veins of the abdomen in most of the cases were more or less enlarged. The cases differed in this regard, but, from a survey of the histories, nothing appears to invest this symptom with much importance.

Symptoms referable to the integument.—Under this head I shall embrace *œdema*. And, as regards this symptom, the facts developed by an analysis of these cases conflict with certain commonly received opinions. More or less œdema of the lower limbs, as is well known, coexists often with hydro-peritoneum. But it is supposed to follow the latter, and to be proportionate to the amount of abdominal distension. In a large proportion of these cases œdema of the lower limbs preceded the enlargement of the abdomen. Of twenty-one cases, the histories of which contain distinct information on this point, in eleven œdema of the lower limbs had precedence. It has been stated (*vide* treatise by Dr. Budd) that when œdema of the lower limbs precedes the peritoneal dropsy, the existence of cardiac or renal disease is to be inferred. The facts developed by this analysis are opposed to this opinion. Of the eleven cases in which œdema of the lower limbs preceded the hydro-peritoneum, five were fatal and six non-fatal. In not one of the six non-fatal cases was the urine albuminous, or were there present physical signs of disease of the heart. Autopsies were made in all

of the five fatal cases. In three of these the heart and kidneys were found to be healthy; in one case old pericardial adhesions existed, and the weight of the heart was 14 oz.; in the other case there was granular degeneration of the kidneys. In the latter case, œdema of the face existed together with œdema of the lower limbs; but in all the other cases, fatal and non-fatal, the œdema was confined to the lower limbs. It follows, from these facts, that in about one-half the cases in which hydro-peritoneum and œdema of the lower limbs coexist, the latter precedes the former; and that, when this is found to be so, it is not to be inferred that the dropsy is associated with renal or cardiac disease. How is this precedence of œdema to be explained? The explanation which seems to me probable is, that, in addition to the immediate cause of the peritoneal dropsy (generally cirrhosis of the liver), other causes favouring dropsical effusion exist in these cases—causes which impair the condition of the blood, or weaken the forces carrying on the circulation. I have had occasion already to offer this explanation in endeavouring to account for the occurrence of peritoneal dropsy at a particular epoch, and for the rapid increase of the dropsy after it commences. It is possible that a small amount of abdominal effusion, not enough to produce any marked enlargement of the abdomen, may involve pressure on the iliac veins to obstruct the return of blood from the lower limbs sufficiently to give rise to the œdema. It is doubtless chiefly in consequence of this pressure and obstruction that œdema of the lower limbs is produced in the cases in which it occurs subsequently to the abdominal distension. It is worthy of note, that in one of the cases in which œdema of the lower limbs preceded the hydro-peritoneum, it disappeared after the latter had become developed.

Œdema of the face, upper extremities and chest, in other words, anasarca, does not belong to the clinical history of simple hydro-peritoneum. Of thirty-nine cases, in the histories of which information on this point is contained, anasarca existed in only four; and in each of these four cases save one, the œdema of the upper part of the body was slight. In each of these cases either cardiac or renal disease existed, to wit, in the disease of the kidneys alone, in one mitral lesion and enlargement of the heart alone, and in one old pericardial adhesion, together with disease of the kidneys. In some of the cases in which the œdema was limited to the lower part of the body, the swelling of the limbs was very great, extending also sometimes to the genital organs. The appearance of the patient in these cases presented a remarkable disproportion between the lower limbs with the abdomen and the upper part of the body—the latter greatly emaciated, and the former enormously enlarged. But in these cases the heart and kidneys are usually free from disease. The existence, however, of œdema in the upper part of the body, *i. e.*, in the face, upper limbs, or over the sternum, is evidence of coexisting disease of the heart or the kidneys, or of both these organs.

Hydro-peritoneum, even when the abdominal distension is great, is not always accompanied by œdema. In nine cases œdema did not exist while the cases were under my observation; and in some of these cases the abdomen was greatly enlarged by the amount of dropsical effusion.

Cholæmia or icterus may be included under this head. This symptom is rarely present in cases of hydro-peritoneum. Of the 46 cases it is noted in the histories of 7; and in one of these cases it preceded, but did not accompany, the dropsy. It is not a symptom of favourable omen. Of the 7 cases, 6 ended fatally under my observation. In none of the cases was the yellowness of the conjunctiva and skin intense, but it was slight in all, and in the non-fatal cases it was extremely slight. The rare occurrence of jaundice in cases of hydro-peritoneum dependent on cirrhosis, is one of the facts going to show that the bile pigment is a product of the secretion of the liver, not preformed in the blood, and that the yellowness of the tissues denotes the resorption of bile. In certain of the cases of cirrhosis in which the liver is greatly contracted and deformed, the secretory function of the organ must be impaired to a considerable extent; and jaundice would be expected to occur frequently, instead of very rarely, if this symptom depended on the accumulation in the blood of bile pigment in consequence of its non-secretion by the liver.

Pallor of the prolabia and skin, denoting anæmia, existed more or less in the great majority of the cases. Some of the cases were characterized by a marked anæmic aspect. In general, this aspect was marked in proportion as other symptoms showed the condition of the patient to be unfavourable as regards recovery or improvement. This symptom, associated with other symptoms which have been considered, gives rise to appearances which are diagnostic and striking, viz., pallor of the countenance, emaciation of the face and upper extremities, distension of the abdomen, with enlarged superficial veins, and œdema of the lower extremities. When this group of appearances is presented, a glance suffices to determine the disease, and the hopeless condition of the patient.

Symptoms referable to the circulation.—The coexistence of disease of the heart has been already considered. I have only to notice, under this head, the condition of the circulation as represented by the pulse. The state of the pulse is noted in 25 cases. But as the histories consist of notes made at irregular intervals, and in many of the cases do not embrace the whole duration of the disease, I have not data for determining the variations as regards this symptom, at different periods in the same case. The facts which were noted show the absence of febrile movement in cases of hydro-peritoneum, except there be some superadded or intercurrent affection. In some cases the pulse was not accelerated; in other cases it was more or less frequent. It was generally small, soft, and feeble. When frequent, the frequency was of that kind which denotes diminution of the vital forces or asthenia. A notably small, frequent, and feeble pulse in

this affection may be considered as evidence that the case is advancing toward a fatal termination.

Symptoms referable to the urinary system.—My records contain very little respecting the urine beyond the presence or absence of albumen. As regards albuminuria, the facts have been already stated. It is noted frequently that the quantity of urine was small; but in several cases it was abundant. A large increase, occurring always after tapping, is noted in one case in which the abdomen was punctured thirty times. In one case the urine was habitually of a bright vermilion colour as if it contained blood. The microscope, however, showed absence of the red globules, and no albumen was present. The urates were very abundant in this case, the deposit being of the same colour as the liquid. The appearances corresponded with those described by Golding Bird as belonging to purpurine. Without a microscopical examination, the colour might be considered as denoting hæmaturia. Had a similar condition of the urine existed in any of the other cases while they were under my observation, it could hardly have failed to attract attention, and would have been noted.

Symptoms referable to the nervous system.—In the great majority of cases no important phenomena pertaining to the nervous system are noted. The mode of dying is usually by slow asthenia; if, however, the accumulation of liquid be very great, or if it take place very rapidly, death may be due to the extent to which the respiratory function is compromised. The mental functions are generally preserved up to the last moments of life. To the latter rule there are occasional exceptions. In three cases I have noted the occurrence of delirium several days before death. In one case the delirium was hilarious; in one case the patient appeared bewildered, and in one case the patient lapsed from childishness into imbecility. These cases ended in coma. In three other cases the patients died comatose. In one case convulsions occurred followed by coma.

These few facts are all which I have noted. It is certain that notable disturbance of the nervous system does not occur until the affection approaches a fatal termination. What is the rationale of the delirium, coma, and convulsions which are sometimes observed? This is an interesting inquiry. My facts do not enable me to answer it. These phenomena may arise from the retention of the blood of the excretory principles contained in the bile. Cholesterine is doubtless one of these excretory principles; and perhaps there are others not yet observed. Here is a rich field for clinical research. The distinctive features of cholesteræmia have not as yet been ascertained. I have been led to suspect that this kind of blood-poisoning occurs especially in certain cases of fatty liver. But the coexistence of disease of the kidney may explain the occurrence of the nervous phenomena just mentioned. It is a question to be settled by an accumulation of facts whether these phenomena are due to uræmia, or

to the non-elimination of biliary principles, or to both these pathological conditions.

MANAGEMENT OF HYDRO-PERITONEUM.—In the management of hydro-peritoneum a prime object is to effect the removal or diminution of the peritoneal effusion. This object is important in proportion to the distress and danger arising from the amount of effusion. It is desirable, however, when the amount is not great enough to occasion distress or danger. There is no foundation for the idea that the pressure of a certain quantity of liquid tends to restrain further effusion; on the contrary, clinical observation shows rather a tendency of the pressure of liquid to accelerate the progress of the dropsy. Whether the quantity be large or moderate, therefore, its removal or diminution is a therapeutic indication. The means for effecting the object are either direct or indirect. It is effected directly by tapping, and it may be effected indirectly by measures which increase the density of the blood by lessening the proportion of water, and thereby favouring the endosmosis or absorption of the dropsical effusion. The measures for this purpose are diuretic remedies and hydragogue cathartics. These will claim separate consideration.

Diuretic Remedies.—In 13 of my cases diuretics were employed to a greater or less extent. In 8 of these 13 cases no effect upon the dropsy was produced, the amount of liquid either remaining stationary or increasing. The quantity of urine was much increased in 2 cases, the quantity in the other cases being either slightly increased or unaffected. Five of these 8 cases ended fatally under my observation. In 5 of the 13 cases, improvement, as regards the dropsical effusion, took place under the use of diuretics. In 2 of these 5 cases the dropsy diminished under the use of diuretics given for a short period, but the diminution was not less after the diuretics were discontinued, and a tonic remedy substituted. In two cases the diuretics constituted the whole treatment, and the improvement was progressive and marked. In one case after tapping the patient took a solution of the bi-tartrate and the nitrate of potassa, with digitalis, for ten weeks, and during this period there was no return of the dropsy. In this case a purge of calomel and jalap was given weekly, and the diet consisted mainly of toast and cider. This plan of treatment was recommended by some one not connected with the hospital, and adopted by the patient with my consent. At the end of ten weeks the dropsy reappeared, and the case ended fatally. It is to be added that during the ten weeks of exemption from dropsy, the quantity of urine was small.

The diuretic remedies used were as follows: nitrate of potassa alone in 3 cases; do. with bi-tartrate of potassa in 1 case; squill, juniper and the nitrate of potassa in 1 case; nitrate and bi-tartrate of potassa and digitalis in 1 case; bi-tartrate of potassa in 2 cases; acetate of potassa in 1 case; digitalis and squill in 1 case; bi-tartrate of potassa, squill, digitalis and

blue mass in 1 case; bi-tartrate of potassa and digitalis in 1 case; and in 1 case the diuretic remedy is not noted. In the 5 cases in which improvement took place under the use of diuretics, the remedies were as follows: nitrate of potassa in 2 cases; nitrate and bi-tartrate of potassa with digitalis in 1 case; bi-tartrate of potassa with squill, digitalis and blue mass in 1 case, and the acetate of potassa in 1 case. Squill, iodine and digitalis were used by means of external application in 2 cases, but with little or no effect.

These facts by no means afford much evidence of the efficacy of diuretics in the management of hydro-peritoneum; they render it probable, however, that, while in the majority of cases no benefit is derived from these remedies, in some cases they contribute to the object under consideration. This conclusion I suppose to be in accordance with the views generally held by physicians. The difficulty of exciting the action of the kidneys in this affection is, in part at least, explicable. Obstruction to the passage of the portal blood into the general circulation (which occasions the dropsy), prevents the free transportation of the remedies to the kidneys. Moreover, the pressure of the effused liquid on the vessels connected with the kidneys, and also on the kidneys, lessens their functional activity. As proof of this, the quantity of urine is observed to increase notably in some cases immediately after tapping.

With respect to the employment of diuretics, an important consideration is, they may be tried with entire safety, if properly prescribed and not continued too long, since they do not cause much perturbation nor exhaust the vital powers.

Hydragogue Cathartics.—Hydragogues, in doses sufficient to produce abundant liquid dejections, entered into the treatment in seventeen cases. Elaterium is noted as the remedy employed in all save two cases, in which the articles used are not stated. It was probably employed in the latter cases also. Seven of these cases are among the fatal, and an equal number among the non-fatal, cases. In nine of the seventeen cases no appreciable benefit was derived from this treatment. In the remaining eight cases the results were as follows:—

CASE 1.—The dropsical effusion was diminished, but otherwise no improvement. This case ended fatally.

CASE 2.—Diminution of dropsy, but otherwise no benefit. A fatal case.

CASE 3.—Dropsy diminished, but subsequently diuretics were substituted, and general improvement under the use of the latter.

CASE 4.—Diminution of dropsy; subsequently convulsions and sudden death.

CASE 5.—Diminution of dropsy; subsequently diuretics, and removal of the effusion.

CASE 6.—Diminution of dropsy, and temporary general improvement; subsequently elaterium was repeated without benefit.

CASE 7.—Immediate and almost complete removal of the dropsy, but it

shortly returned, and the remedy occasioned so much exhaustion that it was not repeated. Subsequently this patient completely recovered.

CASE 8.—Marked diminution of the dropsy, but it returned and increased when the hydragogues were discontinued.

These results contain very little evidence in behalf of the usefulness of hydragogue cathartics in hydro-peritoneum. The dropsy, in some cases, is diminished by their use, and in a small proportion of cases the diminution is marked. But, generally, little is accomplished, and that little only for a brief period. Owing to the disturbance and prostration caused by their prolonged use, they cannot be continued long enough to effect the object, even when we might hope that, if borne, they might prove effectual. In the majority of cases, if continued, or often repeated, they do harm, rather than good. In short, I believe that, as a rule, they should not enter largely into the treatment.

As one of the indirect means of effecting the removal or diminution of the dropsical effusion, restriction of the amount of ingested liquids is to be mentioned. This is important in conjunction with other indirect means, or with the direct method of treatment. The addition of water to the blood is to be limited as far as practicable, and, for this end, patients should be enjoined to take no more drink of any kind than is consistent with a due regard to the parts of the economy. This part of the management is often imperfectly carried out, because many patients lack the necessary determination and perseverance to conform to our injunctions.

Tapping.—In twenty of the forty-six cases tapping was resorted to. Of these twenty cases, eight are among those which proved fatal under my observation. The operation was performed but once in eleven cases; thrice in four cases; four times in one case; six times in one case; repeatedly (the number of times not stated) in two cases, and thirty times in one case. As the propriety of the operation is a point of much practical importance, I shall present briefly the facts bearing upon its influence on the affection in all of the twenty cases,

In five of the cases the patients were tapped within a few weeks or days of the date of death. The operation in all these cases, save one,[1] was performed for the sake of immediate relief, without any expectation of permanent benefit. Immediate relief followed in all the cases. There is no reason to think that life was shortened in any of the cases; but, on the contrary, it was, probably, in some at least, prolonged by the operation. Fatal prostration or sinking did not occur in any instance. In the remainder of the fatal cases the facts were as follows:—

CASE 1.—The patient was tapped six times in the course of two months,

[1] In the excepted case there was no return of the dropsy at the end of three weeks, and the patient seemed quite well. Death occurred in this case instantly while the patient was conversing cheerfully, and the cause of the sudden death was not ascertained.

and was then removed by his friends from the hospital in order to escape a *post-mortem* examination. He died shortly after leaving the hospital.

CASE 2.—Tapping was performed twice in three weeks. After the second tapping there was no return of the dropsy for ten weeks, and the patient improved greatly in appearance and strength. During this ten weeks the patient took daily small doses of the nitrate and bi-tartrate of potassa. He was purged once a week with calomel and jalap, and his diet was toast and cider. At the end of the ten weeks the dropsy returned, and he died shortly afterward. The autopsy in this case revealed a contracted hob-nailed liver.

CASE 3.—The tapping was repeatedly performed during the last five months of life. The immediate relief was marked, but the liquid speedily reaccumulated.

CASE 4.—The tapping was performed twice during the last two months of life with immediate relief, but the dropsy soon returned.

The facts in ten non-fatal cases were as follows:—

CASE 1.—Tapped repeatedly during five months, and, when last seen, the abdomen was distended with liquid, and there existed much emaciation and debility.

CASE 2.—Tapped with great immediate relief. Liquid flowed from the puncture for several days. Twenty-two days afterwards the patient had no reaccumulation of liquid, and was discharged from the hospital.

CASE 3.—Tapped, and liquid flowed from the puncture for several days. Four months afterward, when last seen, there had been no return of the dropsy, and the patient reported quite well.

CASE 4.—Tapped with great relief. Three months afterward, when last seen, no return of dropsy; the patient reporting and looking well.

CASE 5.—Tapped twice in course of three or four months. Subsequent history not known.

CASE 6.—Tapped, for the first time, eighteen months before the case came under my observation. Prior to the dropsy the patient had hæmatemesis. The dropsy had existed for two or three months before the first operation, and had been once removed by hydragogue cathartics. In the course of eighteen months tapping was repeated thirty times. The patient had come to regard the operation as a trivial affair, and the day after its performance was accustomed to go about as usual. When I saw him he was able to take pretty active exercise, but was quite anæmic; the abdomen was then filled, and the abdominal veins largely dilated. The subsequent history is not known.

CASE 7.—The patient, when admitted into hospital, was greatly prostrated, and tapping was resorted to when the case seemed to be near a fatal ending. The immediate relief was marked, and the patient's life appeared to be saved by the operation. Improvement was progressive, but after a month the abdomen filled rapidly, and tapping was again employed. The operation was repeated twice during the following month, and the patient then left the hospital extremely feeble.

CASE 8.—Tapped six months ago, and up to the present time there has been no return of the dropsy. The health of the patient is now good.

CASE 9.—Tapped a few weeks ago, and the dropsy is now returning.

CASE 10.—Tapped quite recently with marked immediate relief.

From the foregoing facts I draw the following conclusions: 1. Tap-

ping may be resorted to as a palliative measure when the condition of the patient is such that only temporary relief is to be expected. We need not be deterred from the operation by the debility of the patient. So far as these facts are concerned, they afford no support to the notion that removing the liquid will tend to produce exhaustion in consequence of more rapid subsequent effusion. On the contrary, life appears to be prolonged by the operation under these circumstances. 2. In a certain proportion of cases the dropsy returns more or less quickly, and if this plan of treatment be adopted, it may be necessary to repeat the operation many times. The repetitions, however, are innocuous. Of this, the case in which it was performed thirty times in 18 months is a striking illustration. 3. In some cases the dropsy does not return for a considerable and even a long period after the operation. Of this No. 2 of the fatal, and Nos. 3, 4 and 8 of the non-fatal, cases are examples, the dropsy in the first case not returning for ten weeks, and in the other three cases not having returned at the end of 4, 3 and 6 months.

As regards the employment of tapping, the views inculcated by medical writers and generally entertained are, that it is to be resorted to only when the abdominal distension occasions great distress or danger, and not until the indirect means of diminishing the effusion have been thoroughly tried; that the effusion generally goes on more rapidly after the liquid has been removed by puncture, than while it was allowed to remain, or when it is lessened by diuretics and hydragogue cathartics, and that the operation involves danger if the system be much prostrated. I have been led to believe that these views are erroneous. By tapping we effect promptly, without perturbation and without impairing the vital powers, the same object which we strive to accomplish by indirect means when we employ diuretics and hydragogue cathartics, measures which are generally ineffectual, which disturb the digestive functions, and enfeeble the powers of life. The operation is trivial, and involves little or no risk of accidents or of peritoneal inflammation. There is no danger from increased rapidity of effusion directly after the operation. The patient is spared not only the inconvenience and distress, but the permanent injury caused by the prolonged pressure of the liquid upon the abdominal and thoracic viscera, and he is in a condition more favourable for other remedies than those which have special reference to the removal or diminution of the dropsy. Clinical experience shows that in some cases, even when the dropsy is dependent on cirrhosis, the liquid does not accumulate for weeks and months after the operation. It remains to be ascertained if in any cases in which it has not yet returned, the exemption will prove to be permanent. A larger accumulation of cases in which the operation was resorted to early is desirable; but upon rational grounds and with my present amount of experience, it seems to me judicious to resort to tapping so soon as the accumulation of liquid is sufficient to occasion much inconvenience, adopting this direct method in lieu of the

indirect means, provided the latter do not happen to prove immediately efficacious, and repeating the operation whenever the abdomen becomes again distended to the same extent.*

The management of hydro-peritoneum involves measures other than those which relate specially to the object thus far considered, viz., the removal or diminution of the dropsical effusion. In studying my cases with reference to causation, I was led to conclude that the dropsy is often measurably due to causes which are remotely operative, that is, causes co-operating with the pathological condition on which the dropsy is immediately dependent. These remote or accessory causes act by impoverishing the blood, and impairing the forces which carry on the circulation. We may be able to control these causes and remove their effects, although the immediate cause of the dropsy be beyond our control. The latter may not alone be sufficient to perpetuate the dropsy, when divested of the remote or accessory causes. Here, then, is an important part of the management. And the first point relates to the habit of spirit drinking. This being the special cause of the lesion which is the proximate pathological condition in the majority of cases (cirrhosis), the abatement of this cause will be likely to prevent the further progress of the lesion. But, aside from this result, the habit of spirit drinking favours the occurrence of dropsy by disturbing the digestive system, and inducing general debility. I shall presently cite two cases in which the interruption of this habit was alone or chiefly sufficient for the disappearance of the dropsy. If the patient be not much debilitated, it is perhaps best that alcohol in any form be abstained from; but if sustaining measures are called for, wine or malt liquors should, if practicable, take the place of spirit; and if the interdiction of the latter cannot be enforced, the importance of not taking it upon an empty stomach should be impressed.

Tonic remedies have appeared to me to be useful in the management of hydro-peritoneum. The citrate of iron and quinia is the remedy which I have almost universally given. In seven of my cases the histories render it probable that this remedy contributed to the improvement which took place. The facts bearing on the supposed utility of this remedy in these cases are as follows:—

CASE 1.—The patient was discharged from hospital free from dropsy, and reporting well enough to return to work; the medicinal treatment having consisted of the citrate of iron and quinia, with the exception of a diuretic for ten days.

CASE 2.—Precisely the same facts, only the diuretic was continued but nine days.

CASE 3.—After free purging with elaterium, the only remedy employed was the citrate of iron and quinia. Under this remedy there was marked improvement, and the patient reported well enough to be discharged, but he was not entirely free from the dropsy.

CASE 4.—No therapeutic measures were employed, save the use of the citrate of iron and quinia. The patient was discharged from hospital free from dropsy.

CASE 5.—Great improvement, the dropsy having nearly disappeared when the patient was last seen. And in this case the quinia and iron, and the tincture of sesquichloride of iron, with bismuth and opium for diarrhœa, constituted the treatment.

CASE 6.—After tapping, the citrate of iron and quinia constituted the treatment. Patient discharged from hospital free from dropsy, and quite well, four months after the tapping.

CASE 7.—The dropsy disappeared in a few weeks, without tapping, under the use of the citrate of iron and quinia; neither diuretics nor hydragogues having been given, and the patient remained free from the dropsy when last seen, two months after coming under observation.

We cannot estimate, in these cases, the importance to be attached to the interruption of the habit of spirit-drinking, and to better hygienic conditions in hospitals than those to which the patients may have been previously accustomed. It is fair to presume that the tonic medication was not without some effect. I should, perhaps, speak more confidently of its value, were it not that improvement and recovery may take place under hygienic treatment without any medication. Of this my cases furnish the two following illustrations:—

CASE 1.—The patient was admitted into hospital a month after the dropsy commenced. The abdomen was greatly distended. He was at first purged with elaterium, but as the purging was not followed by any reduction of the dropsy, and occasioned much prostration, this remedy was not repeated, and a quarter of a grain of the extract of belladonna, three times daily, was prescribed as a placebo. I intended to resort to tapping, but the operation was deferred for several days, and, in the meantime, there was distinct general improvement with diminution of the size of the abdomen. The dropsy rapidly disappeared, and in a short time he reported well enough to return to work and was discharged. The extract of belladonna was the only remedy employed in this case.

CASE 2.—This case has been already given (case of Mrs. W., *vide* page 319) as an illustration of complete recovery, the patient having been in excellent health for more than eighteen months. After the employment of elaterium, iodide of potassium and the citrate of iron and quinia, the dropsy remaining unaffected, she recovered on going into the country and taking out-door exercise, all medication having been suspended.

Of the use of mercury in hydro-peritoneum I can say nothing from my own experience. In some of my cases mercurialization had been produced, prior to their coming under my care, without any benefit. I should expect only injury from a remedy which induces anæmia.

In cases in which diarrhœa exists, a practical point relates to the propriety of endeavouring to relieve this symptom. Does not its continuance tend to lessen the dropsy? It is generally supposed to have this effect, and therefore its continuance is regarded as desirable. I have been led to doubt the correctness of this opinion, and to think that, in some cases at least, by increasing the general debility, diarrhœa contributes to the increase of the dropsy. In one of my cases the patient was progressively improving

under tonic medication, but was troubled with chronic diarrhœa, and I resolved to see what would be the consequence of arresting the diarrhœa. Bismuth, and afterward opium, were prescribed for this end, and proved effectual. The improvement in this case was not less progressive after the diarrhœa was arrested than before.

Another practical point relates to the treatment of œdema of the genital organs by scarification. The œdema in this situation sometimes becomes excessive, but the parts cannot be scarified without risk of serious consequences. Two of my cases illustrate the correctness of this statement. In one of these cases mortification ensued, and the patient died before sloughing took place. The other case came under observation after sloughing of the greater part of the scrotum had taken place, leaving the testicles exposed. After the scarification the patient was tapped, the space left by the slough granulated kindly, and when I last saw the patient the part had nearly healed. This unexpected cicatrization seemed to me to furnish a striking illustration of the general improvement resulting from the removal of the dropsical effusion by tapping.

To sum up in a few words, the management of hydro-peritoneum, so far as it has been considered, the first object generally being to effect the removal or diminution of the peritoneal effusion, we may make cautious trial of diuretics and hydragogue cathartics. If these means do not prove promptly efficacious (as they will very rarely do), it is useless to persist in the former (diuretics), and injurious to continue the latter (hydragogues). Tapping should be resorted to so soon as the abdomen becomes distended, and may be repeated as often as the effusion accumulates sufficiently to produce distension. If the system be not much debilitated, all alcoholic beverages are to be interdicted; and if these seem to be required, or the patient have not sufficient resolution to forego their use, wine and malt liquors should be substituted for spirit. If spirit must be taken, it should be taken diluted and not on an empty stomach. Tonic remedies are to be prescribed. A nutritious diet is important, and the quantity of liquid ingested should be as much restricted as practicable, the object being to render the blood rich in quality, without increase of quantity, avoiding anæmia and hydræmia. In general terms, the hygienic conditions should be as good as possible. If diarrhœa exist, it may be relieved by appropriate remedies, in some cases, at least, without injury, if not with benefit. It is dangerous to resort to scarifications to relieve excessive œdema of the genital organs.

COURSE AND TERMINATION OF HYDRO-PERITONEUM. PROGNOSIS.—Of the 46 cases which have been analyzed, 24, as already stated, either ended fatally under my observation, or the patients were known to have subsequently died. Of the 22 non-fatal cases, in 8 there had been no improvement when the patients were last seen or heard from. Doubtless in most,

if not all of these cases the termination was fatal. In 4 cases, when the patients were last seen, or heard from, more or less improvement had taken place, but the dropsical affection continued. In 10 cases, the dropsy having disappeared or been removed by tapping, the patients were free from the affection when last seen or heard from. The period during which it is known that they continued exempt from dropsy, varies from a few weeks to eighteen months. In only two of the cases is the present condition of the patients known, nor, excepting these two cases, is it known whether the patients are living or dead. In one of the two cases just referred to, the patient is now well after a period of over eighteen months from her recovery, and in the other case the patient is in comfortable health eight months after recovery. Exclusive of these 2 cases, the patients were in no case known to have remained free from dropsy for a longer period than three months, and in most of the cases only for a few weeks. They were hospital cases, and after the removal of the dropsy, with more or less general improvement, they were discharged, and have not been heard from since their discharge. It is by no means fair to consider these 8 cases as having terminated in recovery. It is highly probable that in most of the cases the dropsy subsequently returned. Of the two excepted cases, in one the period of exemption from a return of the dropsy (eight months) is hardly long enough to consider the recovery as permanent; so that, in fact, out of the forty-six cases analyzed, I can state positively that recovery has taken place in but a single instance. This is the case of Mrs. W., which has been given in full.

The duration of the disease, dating from the commencement of the dropsy, in the fatal cases, varied from six weeks to seventeen months. The average duration in 16 cases is about five months. The duration of the dropsy in the cases in which it was removed and did not return while the patients were under observation, varied from one month to four months.

The prognosis, as regards permanent recovery, it is evident, is extremely unfavourable. But with reference to this point, a collection of cases in which patients remained under observation for a longer period after apparent recovery, is desirable. We cannot consider a patient as having recovered, although he may have been exempt from recurrence of effusion for weeks or months, if pathological conditions remain which will inevitably, sooner or later, reproduce the dropsy. The facts developed by this analysis, however, show that in a fair proportion of cases the dropsy may be removed, and not return for weeks or months, the patient, in the meantime, regaining apparent health. We are warranted, therefore, under favourable circumstances, in holding out encouragement for this result with the possibility of permanent recovery.[1]

[1] Since this article was written, a case has come under my notice of much interest as regards apparent recovery after tapping, and reproduction of the dropsy after the lapse of several years. The patient was admitted into Bellevue Hospital with

The most favourable circumstances are those which go to show that the dropsy is dependent on some functional condition, and not on hepatic lesion; the cases, however, in which we are warranted in coming to this conclusion, are exceedingly infrequent. But assuming the existence of structural disease of the liver, circumstances are favourable which render it probable that the dropsy depends, not exclusively on the hepatic disease, but, to a greater or less extent, on associated morbid conditions which we are able to control, such as anæmia, general debility, diarrhœa, intermittent fever. In other words, the prognosis is unfavourable in proportion as we have reason to believe that the dropsy is exclusively due to irremediable lesion of the liver. If the liver have undergone structural change, permanent recovery is not to be expected, but it is to be borne in mind that dropsy may be removed and not return for an indefinite time, notwithstanding a certain amount of immediate hepatic lesion. When, therefore, there is reason to believe that dropsy involves the existence of cirrhosis (which is true of the vast majority of cases), although we cannot look for permanent recovery, we may hope, if the circumstances of the case are not otherwise unfavourable, that, after the removal of the dropsy, the patient may be exempt from a recurrence of the affection for a long period, and that, in the mean time, with judicious management, a comfortable state of health may be secured. The liver, doubtless, like other important organs, has a functional capacity exceeding greatly the necessities of the economy. Like the lungs, kidneys, stomach, heart, etc., it may be damaged to a greater or less extent, and yet be competent for the duty required of it. As proof of this, in fatal cases of cirrhosis, death generally takes place by asthenia, induced by the serous transudation, the disturbance of the functions of the thoracic and abdominal organs by the pressure of the liquid, the difficulty attending the introduction into the general circulation of the nutritious supplies in the portal blood, etc., and not from the reabsorption of bile or the retention in the blood of excrementitious biliary principles. Assuming that the liver has received a certain amount of damage from structural change, there are two great ends to be desired: *First*, that, if possible, further damage shall not occur; and, *Second*, that the powers of the system may be preserved, so as to tolerate, as well and as long as possible, the structural change already existing and which must continue.

hydro-peritoneum which had existed for two months, having been developed after intermittent fever. Eight years ago he had this disease, and at the end of four months was tapped. The tapping was repeated after an interval of two weeks. There was no return of the dropsy for six years, and during that time he had good health. Two years ago the dropsy returned, and he had hæmatemesis. Five weeks from the commencement of the dropsy he was tapped. The dropsy returned, but disappeared under the use of medicines, and he remained free from it until two months ago. He has continued to drink spirits more or less prior to, and ever since the first occurrence of the dropsy.

Circumstances which preclude much expectation of improvement, are: the coexistence of cardiac or renal disease; considerable emaciation; sufficient debility to keep the patient in bed; jaundice; greatly impaired appetite and digestion; speedy reaccumulation of liquid after tapping. When more or less of these unfavourable circumstances are present, the physician can hardly hope to do more than to retard the progress toward a fatal termination.

In conclusion, unpromising as are the majority of the cases of hydroperitoneum, I cannot but believe that, as regards prolongation of life and as much improvement of health as is compatible with existing structural disease, the success of medical practice would be enhanced by employing less than has been the custom of physicians, diuretics, hydragogue cathartics, and other depressing remedies, by resorting earlier than is usually done to tapping, and by a greater reliance on tonic medication, together with hygienic measures to invigorate and strengthen the system.

ART. III.—*On Gold Dust and Iron Filings, as an Antidote for Corrosive Sublimate.* By CHRISTOPHER JOHNSTON, M. D., Baltimore, Md.

IN the year 1841 a rejected lover, at that time a visitor in Baltimore, committed suicide by taking a large dose of the corrosive chloride of mercury. The case fell into the hands of Dr. Thomas H. Buckler, who employed, unavailingly, all the known antidotes for this destructive agent, and had the misfortune to see his patient die in great agony. The failure of art to relieve made a strong impression upon Dr. Buckler, and he forthwith instituted experiments with the view of ascertaining by observation the efficacy and value of the various articles used or proposed to counteract the poisonous effects of the mercurial salts.

In the course of these experiments upon pigs and dogs, it occurred to him to magnify the *galvanic test* into an antidote—for, said he, if the corrosive chloride in solution, being placed on a bright gold surface, and touched with an iron point which is also brought in contact with the gold, undergoes decomposition, there is no reason why gold and iron in the form of powder, as exposing great surface, should not also separate chlorine and mercury in combination in the living stomach. Besides, the elements are instantly appropriated by the antidotal agents, "the mercury attaching itself to the negative electrode, namely, the gold, while the chlorine unites with the iron of the positive electrode to form chloride of iron; and thus, for a highly dynamic substance, we substitute a comparatively inert amalgam of gold and a harmless chloride of iron."

Accordingly into the stomach of pigs and dogs he introduced poisonous

doses of the corrosive chloride of mercury, taking care to control the œsophagus: and then, after various intervals, he passed an estimated quantity of gold dust and iron filings into the stomach of a portion of the animals. All the poisoned animals which had not received the antidote became the victims of the experiment; and of the others, those only died which had presented very severe symptoms before the administration of the remedy.

These results were published by Dr. Buckler in the Baltimore *Medical and Surgical Journal* in 1843, with a recommendation, by the author, of the *new antidote* which he proposed. But the suggestion seemed to have received no attention whatever, until, in the last year, a case of corrosive sublimate poisoning occurred to us, in the which we essayed for the first time gold dust and iron filings upon the human subject.

We had had the good fortune to witness a repetition of Dr. Buckler's experiments, and were familiar with his views in respect of the agency at work; so that we only awaited a fitting opportunity for testing the value of our friend's proposition.

On the 14th of May last, a gentleman of this city, being disturbed in mind, procured two drachms (℥ij) of corrosive sublimate from an apothecary, assigning as a reason his intention of destroying rats; mixed two-thirds of the salt with whiskey and water and swallowed the whole at a draught, leaving no dregs in the tumbler. In about ten minutes his wife, hearing efforts at vomiting in her chamber, proceeded thither, and found her husband sitting up in violent and agonizing emesis. A word and the fatal paper satisfied her as to the danger of the sufferer; whereupon she dispatched a messenger for medical aid, but administered the while milk and white of egg, having in a previous marriage been the observant wife of a physician.

In five minutes—it so happened—we were at the bedside, and the galvanic antidote being present in our mind, we sent in haste for two drachms of iron by hydrogen, and a book of gold-leaf. While waiting for the arrival of the articles we encouraged perseverance in the use of albumen and milk, but the patient continued to vomit freely, violently, and unintermittingly. Everything swallowed was rejected as soon as it approached the stomach, and then, after sturdy efforts, small quantities of greenish mucus, streaked with blood, were discharged. The face was much congested, the body cold, and the whole surface bedewed with sweat.

In less than ten minutes (in all somewhat short of twenty-five minutes from the ingestion of the sublimate) we had prepared a bolus by dusting the surface of a leaf of gold with the iron, over this another leaf, then iron, and so on, alternating the two metals until about one-half of the gold leaf had been expended, and the mass was rolled into a ball.

Before swallowing this, however, we administered warm water to effect the removal of mucus, albumen, and milk, should any of these matters be in the stomach, as they must defend the sublimate from the action of the antidote by preventing contact. Instant emesis followed.

The bolus was readily taken into the stomach, aided by a little water, for the poisoned man regretted his act and wished to escape from death. For five minutes there was a calm, during which we made another bolus with the remainder of the gold-leaf and iron.

Vomiting now recurred, but with less violence, and the matters ejected were tinged with yellow or light brown, and contained particles of gold-leaf.

Presently another moment of quiet occurred, which was the signal for the administration of the second bolus. Vomiting now ceased entirely, although at intervals for an hour a slight tendency towards emesis was observable—but the frantic, tremulous anxiety, had given place to confidence and composure—the man had assumed a hopeful appearance, and we were of opinion that the first—the greatest danger—was past.

On the next day moderately severe ptyalism manifested itself; but the convalescence was rapid, and the cure was complete in about eight days.

The after-treatment, when vomiting was arrested, was very simple, consisting of hydrocyanic acid in mucilage with small doses of morphia; mucilaginous drinks, as of gum Arabic, or quince seed, were directed; and beef-tea and arrowroot were the essential articles of diet for some days. Rochelle salt dissolved in soda water was given on the first days, and counter-irritation over the epigastrium practised from the beginning, and continued until all signs of gastric disturbance had disappeared. And, to conclude the statement, the mouth symptoms were met by gargles of tinct. perchloride of iron largely diluted with water, alum in infusion of sage, and lastly, flaxseed tea acidulated with lemon.

We would not insist upon the superior efficacy of gold-leaf and of iron by hydrogen over gold dust and fresh iron filings—although in the case reported the virtue of the former was apparent to and acknowledged by all the witnesses—for we have still a preference for the latter, on account of the freshness of the metallic surfaces. But in the hurry of the moment the first mentioned may be easily obtained in a state of preparation excepting on Sundays, and then even a dentist would furnish gold-foil No. 4 or lighter, which would supply the place of gold-leaf. If the conveniences were at hand, or, if we were near a pharmaceutist's, we would prefer to grind gold-foil with fresh iron filings in a mortar, and exhibit the coarse powder so produced with a little water; for the heavier particles would more quickly find their way to the mucous coating of the depending portion, while enough of the finer particles would distribute themselves throughout the stomach to accomplish the destruction of the corrosive chloride not in contact with the mucous membrane.

With regard to the quantity and proportions of gold and iron to be administered together as an antidote for the corrosive mercurial salt, it is desirable to know approximately the amount of the poison taken; but this is not indispensable, for an overdose of the remedy would occasion no "unpleasant" consequences. Lest an insufficient quantity of the metals be

exhibited, a reference to the table of equivalents is necessary. As for mercury and gold there is much discrepancy among authors, but if we adopt for Hg 100.1 (Erdmann) for Au 196.44 (Berzelius), for Fe 28.04 (Erdmann) and for Cl 35.5 (Berzelius), we have for corrosive sublimate the formula HgCl (100.1+35.5)=135.6, and 100 grains would contain Hg 73.82, and Cl 26.18. Now, since the corrosive sublimate in the presence of gold and iron is reduced, and there are formed an amalgam of gold and sesquichloride of iron, we must know how much iron is needed to make that compound with Cl 26.18. The formula for the sesquichloride is Fe_2Cl_3 (56.08+106.5)=162.58; therefore in 39.96 grains we have Cl 26.18 combining with Fe 13.78, the quantity sought.

Again, to estimate the gold, assuming the amalgam formed to be in equivalent proportions, we find AuHg (196.44+100.1)=296.54; and in 218 grains we discover 144.86 grains of the precious metal, and 73.82 grains of mercury. Or, if we employ the equivalents adopted by Cahours, thus, Au 98.18 (not far from Graham, Au 99.6) and Hg 103), we have 140.92 grains of amalgam yielding 67.10 grains of gold. In short, we need 144.86 grains of gold (or else 67.10 grains) to appropriate the mercury liberated by the action of the reagents. This discrepancy is not likely to lead to ill-results, for, if we use the larger number, we might be quite at ease about the amalgam produced, and it is not certain that the lesser quantity would contribute to form an amalgam more noxious than the other.

To sum up: For 100 grains of the corrosive sublimate of mercury taken there would be required of iron 13.78 grains, or rather less than the ¼th part by weight, and of gold dust 144.86 grains, or about one and a half times the weight, to effect the decomposition of the poison and the complete appropriation of its elements. If we follow Cahours we need only employ 67.10 grains of gold.

In conclusion we would remark, that very large doses of the antidote must be rarely needed, since vomiting, which marks the earliest effects of the corrosive chloride of mercury, necessarily rids the stomach of some portion of the destructive agent.

January 19, 1863.

ART. IV.—*Surgical Cases, Illustrating some Practical Points.* By JOHN ASHHURST, JR., M.D., of Philadelphia.

THE following cases are selected, not from any peculiar intrinsic interest, nor from a supposition that they are in any degree rare or unusual; but because it is believed they will serve to illustrate one or two points in practice about which much diversity of opinion exists, and which the present war ought to settle, if not definitively, at least more certainly than has hitherto been done.

These cases were all advanced into the secondary stage, or that of suppuration, when first brought to the Chester hospital, where I observed them. Had the necessity for operative interference been more quickly recognized, there is no doubt the results would have been more favourable. The statistics of secondary amputation in gunshot wounds are so unsatisfactory, that the operation was only employed when it seemed any other course would insure death. And this, I think, should be the rule; in the case of primary operations, the sooner the better. "Every hour," says McLeod, "the humane operation is delayed, diminishes the chances of a favourable issue." (*Notes on Surgery of Crimean War*, Am. ed., p. 319.) But when the golden opportunity has been lost; when, for any reason, the attempt to save a limb has been made, and the suppurative stage has fairly come on, amputation should not be resorted to, unless the patient's general health begins to give way, when of course the limb must be sacrificed in the endeavour to preserve life.

It is the popular opinion, unfortunately encouraged by some of the profession, in this, as it has been in every other war, that army surgeons are too prone to operate, and that limbs are daily sacrificed that might be saved; but the same conviction is gradually coming to us that was forced on McLeod, on Hennen, on Dupuytren, on Baudens, on Begin, on Larrey, and Guthrie; that, in trying to save limbs, we lose lives. "At the outset of my career," said Begin, "I amputated less than I did toward the end of my service," and the same is the experience of all. I suppose there is hardly a surgeon in the Federal army who does not know of one or more lives sacrificed to "conservative surgery," so called.

I shall narrate the cases I have to report in the order in which they occurred, and shall afterwards call attention to one or two points of interest connected with them.

CASE 1. Private Faulkner, Co. H., 70th N. Y. Vols., was wounded in one of the battles before Richmond in the latter part of August, 1862. A flesh wound of the abdominal parietes in front, and a comminuted fracture of both bones of the left forearm just above the wrist, were the effects of the same ball. He came to the army hospital at Chester, Pa., on September 3d, and was placed in the ward of which at that time I had charge.

As suppuration was already established, and the case seemed to be progressing favourably, the arm was lightly dressed, and kept at rest on an appropriate splint. About the middle of September, however, the limb became much inflamed, and it was rendered evident that the destruction of bone was much greater than had been supposed; and that, in all probability, the wrist-joint itself was involved. At the same time the wounds of the abdominal region assumed an unhealthy appearance, diarrhœa set in, and the patient became daily more prostrated.

Free incisions, soothing applications, and all means that a desire to save

the limb could suggest were employed, but without avail; and on the 25th September it was decided, in consultation, that the forearm must be removed.

I accordingly performed the operation the same afternoon, the patient being under the influence of ether, by the method of Mr. Teale. Sixteen ligatures were applied, the flaps brought together by points of lead suture, and the stump kept wet with an anodyne wash. Light, but nutritious diet, six fluidrachms of brandy every hour, with tonics and anodynes cautiously administered, constituted his treatment. The patient rapidly improved, the flaps adhered throughout, except where the ligatures escaped, and recovery followed without a single unfavourable symptom. When I last saw this man, in December, he was awaiting his discharge, not having been under any treatment for a long while, and his stump as full and plump almost as on the day of operation.

CASE 2. Corporal Warren, Co. H., 20th Mass. Vols., at the battle of Antietam, September 17th, received a gunshot fracture of the right humerus, and entered the Chester hospital on the 2d October following. The next day a portion of ball was removed by a counter-opening on the outside of the arm, the track of the original wound being antero-posterior, and in the middle third. Subsequently the wound of entrance was enlarged, and a fragment of bone, which was loose, extracted. By the finger, which could be easily introduced into the posterior wound, that of exit, it was found that a large fragment of the lower part of the humerus was dead and partially loose. It was therefore determined, in consultation, to enlarge this wound, remove all loose pieces of bone, and, if necessary, saw off the projecting extremities of either portion.

Accordingly, on the afternoon of the 11th, the patient was brought under the influence of ether, and a free incision made longitudinally downwards from the wound of exit. It was found, by the examination which could now be made, that the destruction of bone was much greater than had been at all imagined, and resection was resolved upon, which it was supposed would give a reasonable prospect of preserving the limb.

Access to the bone was facilitated by a transverse incision, starting also from the wound of exit, the upper end of the lower fragment removed by means of a metacarpal saw, and the projecting part of the lower fragment by bone-nippers. Only a few small vessels required ligature, the wound was accurately closed, and the limb placed at rest on a splint. With the exception of a very profuse suppuration and consequent failing strength of the patient, everything progressed favourably until early in the morning of the 18th, one week after the operation, when a profuse secondary hemorrhage took place, stopping of itself by the time I reached the ward.

It was now decided, should hemorrhage recur to any considerable amount, as the patient was already much weakened by suppuration and the subsequent loss of blood, to perform amputation above the seat of injury.

Another hemorrhage, of a still more alarming extent, did take place the next afternoon, and, accordingly, the patient being under the influence of ether, I removed the arm in its upper third, oval skin-flaps being obtained from the front and back of the arm, and the muscles divided by a circular incision higher up. Very little blood was lost, thirteen ligatures being employed, and the flaps brought together by the lead suture. For several days the patient hung between life and death, but nature finally triumphed, and recovery, after amputation, was even more rapid than had been the sinking after the "conservative" operation of resection.

CASE 3. Corporal Burnham, Co. D., 132d Pa. Vols., admitted also on October 2d, with a gunshot fracture of the left radius, received at the battle of Antietam. For some weeks the case was treated by the ordinary methods, but at the end of that time it was found that the radius had become necrosed for a space of about three inches, and apparently in its entire thickness. Resection was at first proposed, but, in view of the man's broken down condition, the risk of secondary hemorrhage or sloughing, and consequent necessity for a subsequent operation, and the patient's own expressed preference for amputation, the latter course was adopted, and I removed the forearm a short distance below the elbow on October 28th, by making two oval flaps, antero-posterior, cut from without inwards, the patient being under the influence of ether. Consecutive hemorrhage required the stump to be opened the same evening, and finally could only be stopped by plugging either bone with a pellet of wax, and inserting several thicknesses of patent lint between the flaps, which were then held together by strips of adhesive plaster.

Oct. 30, both flaps presented healthy granulations, the lint was removed, and the flaps kept in position as before.

Nov. 2 (five days after the operation), a secondary hemorrhage. On opening the stump the bleeding vessel was found and tied.

Nov. 4th, 4 A. M., another hemorrhage, stopping of itself, and followed by still another about three hours later. It was now determined to ligate the brachial artery, which was accordingly done, the patient reacting with difficulty from the anæsthesia which had been again produced, and being exceedingly feeble from the repeated loss of blood. The brachial artery was found to have divided high up, and both branches were accordingly secured. For some days he seemed to improve, then sloughing and numerous abscesses around the joint followed, hemorrhage recurred from both wounds, and death closed the scene on November 15, eleven days after the ligation of the brachial artery, and eighteen after the amputation. No *post-mortem* examination was obtained.

CASE 4. Private Donnell, Co. B., 27th N. C. Regt. (rebel prisoner), also wounded at the battle of Antietam, and admitted on October 2d.

The wound, which appeared to be simply a flesh wound, did well, and

was nearly healed, when, from some then unknown cause, the track reopened, and by the probe and little finger dead bone was detected about the middle of the left femur. After some time rigors and hectic supervened, and it became evident that, unless an operation could alter the state of things, death must inevitably occur, and that in a very short time. Amputation was accordingly determined on, and the patient being etherized, I removed the thigh about the junction of the upper and middle thirds by the circular incision on the afternoon of November 6. The patient with great difficulty reacted from the state of anæsthesia, but subsequently sank suddenly, and died seven hours after the operation. The femur was found necrosed in its entire thickness, and a large mass of soft callus had been thrown out, between which and the dead shaft a foyer of pus existed.

The points to which I wish to refer in these cases, and which I consider of great practical importance are: 1. Resection in the continuity of long bones as a substitute for amputation, and as an aid to nature in compound fractures. 2. Ligation of main arteries as a remedy for secondary hemorrhage. 3. The importance of amputating soon when the operation is to be done at all.

The excision of the articular extremities of the long bones for injuries of the joints is an operation now firmly and justly established as truly conservative. The removal of portions of the shaft of long bones for necrosis has been done with occasional good results. "Such operations, however," says Holmes, "whether undertaken on account of caries or necrosis, too often result in failure." (*Syst. of Surgery*, vol. iii. p. 830.)

The same author, in his edition of Wagner's treatise on the process of repair after resection and excision of bone, has collected seven cases of resection from the substance of bone, only three of which, however, are apposite to the present discussion. In one of these, the ulna being the bone concerned, "the movements of the arm including rotation, were almost perfectly restored." In another, where a great part of the tibia was removed, after three-quarters of a year, "in spite of the uninjured fibula, shortening of more than two inches had occurred." While in the third, also a resection of the tibia, "the limb remained useless, and the leg was amputated eight months afterwards." (*Selected Monographs*. New. Syd. Soc., pp. 239–240.)

These were resections under favourable circumstances, for in operations for disease, the periosteum can generally by preserved, thus giving a chance for the formation of new bone.

A great deal is said at the present time about subperiosteal resection. "Some writers," says Mr. Holmes, "speak about subperiosteal resections of joints, in such terms that one is almost disposed to think that they imagine the possibility of dissecting out the end of the shaft of a large bone, like the femur or the humerus, and leaving behind a sleeve of periosteum, which is to reproduce the bone. Such an idea is preposterous.

The attempt would only result in leaving some irregular shreds. M. Ollier's experiments show that such shreds will, in the lower animals, produce irregular nodules of bone. Probably this would not be so in man; but if it were, such nodules would be more often in the way than otherwise." (*Syst. of Surgery*, vol. iii. p. 803.)

Ollier has indeed gone further than this, and has shown that in animals, an entire articulation may be reproduced; and even suggests a new operation, "*osteoplastie périostique*," as being quite possible. Although, however, nearly four years have elapsed since the publication of his paper (*Journal de la Physiologie de l'Homme et des Animaux*, Avril, 1859), I am not aware that even an attempt has been made to carry out his proposal.

But whatever may be the results and prospects of resection in cases of necrosis, gunshot or other injuries present a different position of affairs; here the preservation of the periosteum may be looked upon as practically an impossibility, and the best result that can be hoped for is a shortened and twisted limb. If the end of a broken bone project through the skin, and the fracture can in no other way be reduced, it would seem reasonable to saw off the projecting portion, and thus remove the obstacle to the proper adjustment of the fragments. But if this particular contingency be not present, and deep and long incisions be required to expose the injured bone, the question is different. If the destruction be so great as to render an operation of any kind necessary, I doubt if true conservatism would not point to amputation; because for one limb deformed and helpless perhaps, which resection might save, I fear that more than one life would be sacrificed.

Hence, should another case like that of Corporal Warren occur to me, I should avoid all operative interference as long as possible, and if it became finally indispensable to do anything more than the mere removal of sequestra, I should advise amputation at or above the seat of injury.

The utmost, I conceive, that resection in such a case could accomplish, would be the preservation of a limb of doubtful utility. "I cannot," says Mr. Holmes, "discover any evidence of the restoration of the continuity of a long bone after its interruption by the resection of a piece of its shaft, except in cases of necrosis. Probably if the piece were very short, union might occur; but the necessity for the removal of such a piece could hardly ever arise." (*Syst. of Surgery*, vol. iii. p. 830.) To all the risks of a compound fracture, the risks of a capital operation are added; and if the necessity for subsequent amputation, as in my case, arises, it is not always that the patient is so fortunate as to survive his complicated dangers.

No accident following operations is more harassing to the patient and more feared by the surgeon than secondary hemorrhage, and it might seem strange that the profession have not yet arrived at any unanimous conclusion as to the best means of remedying so dreadful an occurrence. Most

surgeons, if not of the present day, at least quite recently, have supposed that ligation of the main artery above the seat of hemorrhage was the safest and surest way of checking bleeding. But the fact brought so prominently forward by Guthrie, that secondary hemorrhage in almost all cases is from the lower or distal end of the wounded vessel, explains the frequent failure of this operation. Undoubtedly when it is possible to do so, Guthrie's recommendation should be carried out; viz: to cut down at the seat of hemorrhage and secure both ends of the bleeding vessel. But in many cases this is impossible. By the time the bandages and dressings are removed the hemorrhage has ceased, and the bed soaked in blood, and the patient's fluttering pulse are all that remain to tell of the occurrence. In such a case forced flexion of the limb, or pressure upon the main vessels, will sometimes prevent a return of the bleeding; but, as a general thing, ligation of the artery above, or amputation, are the only means that promise success; for the most careful scrutiny may fail to discover any patulous arterial mouth.

Ligation is of course looked upon with favour, as giving a chance of saving the limb.

I can recall very well a case in the Pennsylvania Hospital, where, for hemorrhage, the radial, then the ulnar, and finally the brachial artery was tied; and the man's life and limb were both saved. But I fear such cases are exceptional. The use of the actual cautery, introduced into the bleeding artery through a canula, as practised by Mr. Cline (*South's Chelius*, Am. ed., vol. i. pp. 347–352) would, I should suppose, be very efficient, but for the fact that in most cases of secondary hemorrhage it is impossible to find the bleeding vessel.

In compound fractures, whether from gunshot wounds or other causes, ligation of the principal artery will not only generally not succeed in permanently arresting hemorrhage, but superadds a considerable risk of gangrene; while even in bleeding from stumps, where it would seem to promise more favourable results than under any other circumstances, it too often proves unavailing, and subsequent amputation or death obliges the unwilling surgeon to record it among his unsuccessful operations.

A case, narrated by Bertherand, seems so appropriate in this place as to merit more than a passing reference:—

"Captain O——, who had been wounded in the upper third of the forearm by a ball which passed between the two bones, after a considerable time had a hemorrhage which was attributed to a wound of the interosseous artery. After vain efforts to control it by the application of Signoroni's compressor, the usual hæmostatics, compression direct or remote, the brachial artery had to be tied. In spite of this remedy, which one might suppose would be final, the hemorrhage soon returned. I was asked to see the patient. He was lodged with an excellent *confrère*, who, with his wife and two daughters, maintained from hour to hour a digital compression on the wounded limb. Having assured myself of the reality of the ligature of

the principal trunk, I probed the wound and took away with my forceps a fragment of lead. I then passed into the track a mesh saturated with a solution of the perchloride of iron, and the bleeding was arrested. As the lower end of the vessel might be the source of the accidents, I advised the application of a gauntlet bandage and graduated compresses, methodically bound, as well on the face of the limb as in the interosseous space, and continued as high as the wound, an elevated position for the hand, perfect rest, and digital compression in the axilla. In spite of these precautions the dressings were again the next day tinged with red, and the patient sinking, all resources having been exhausted, we had to be resigned to the cruel necessity of amputation.

"I have since learned that Captain O—— was not able to support its consequences." (*Bertherand, Campagne d'Italie*, pp. 159, 160.)

Who can say that here the "humane operation" in the first place would not have been truly conservative. I am aware that the doctrine I am advocating is in opposition to the views of many, probably a large majority, of the most eminent names in surgery; but I am well convinced that had I in Corporal Warren's case tied the brachial or axillary, instead of amputating, he would not now be alive; while, on the other hand, if in Burnham's case I had amputated above the elbow, instead of tying the brachial, it is not impossible that the result might have been different.

The third point to which I wish to direct attention is the importance, when an amputation is certainly to be done, of doing it as soon as possible. Many a life has been sacrificed to the hope of getting the patient in a better condition before operating. It should be remembered that the shock of an operation, particularly with the use of ether and opium, is a very slight matter; while the presence of the limb to be sacrificed is a positive and constant depressing agency.

Had Faulkner's arm been left on a few days longer, in the hope of his being better able to support the operation, I believe the operation would have come too late. Had Donnell's thigh been sacrificed at the first manifestation of unfavourable symptoms, his life might possibly have been preserved.

On the other hand, no secondary amputation should be performed for mere *probable* cause; for the ability of nature to relieve herself by throwing off sequestra, &c., is sometimes almost incredible. If the operation be inevitable, or if the patient be manifestly failing day by day, hesitation may become fatal; but while the health is kept up, and the effort seem not too great for nature unaided, expectancy remains the proper mode of treatment.

The inferences which have been forced upon myself by a careful review of the cases above narrated may be thus summarily stated:—

I. When the injury is recent, in any case of doubt the limb should be amputated. For one limb needlessly lost, many lives will have been saved.

II. Resection in the continuity of long bones is not a substitute for am-

putation; and except in the one case of a bone projecting through the skin, and otherwise irreducible, is not an assistance to nature in the treatment of compound fractures.

III. Ligation of an artery above the wound is too often unavailing as a means of checking secondary hemorrhage; and in many, if not most cases, amputation is a safer remedy.

IV. No secondary amputation should be performed for *probable* cause only; but if certainly requisite, or if the patient be evidently sinking, delay, even the slightest, is to be deprecated, and often will, unhappily, prove fatal.

PHILADELPHIA, February, 1863.

ART. V.—*On Compound Comminuted Fracture of the Femur from Minie Balls.* By A. E. CAROTHERS, M. D., of Newburg, Cumberland County, Penna., and formerly Act. Asst. Surgeon U. S. Army.

THE character and extent of the injury caused by the minie ball in the bony tissues, and especially in the compact substance of the shaft of the long bones, as the femur, is very different from that caused by any other projectile used in modern warfare.

The weight of the ball, its velocity, and the great momentum resulting therefrom, combined with its rotatory motion, serve to cause a fracture differing from that produced by the ordinary round ball, by the great comminution, by the disposition of the lines of fracture to extend along the bone in the axis of its length, and also by the tendency of the fragments to separate from their continuity and be driven off into the contiguous muscles. I have seen a *transverse* fracture of the femur caused by a minie ball, at least four inches above the point at which the ball impinged on the shaft of the bone, resulting from *momentum* of the ball being transmitted along the shaft of the bone, until a point was reached at which the resistance of the femur counteracted it, at which point a fracture was produced by the opposing forces.

It having been my fortune to meet, during the term of my service in the U. S. Army, quite a large number of compound comminuted fractures of the femur from minie balls, I purpose to give a brief resumé of the cases, with a detail of their treatment and results, as nearly as possible from the few hasty notes which I was able to take at the time, and from my own recollection of the cases.

My first cases were three soldiers wounded at the battle of Cedar Mountain, August 9th, 1862, in the U. S. General Hospital at Culpepper Court House, Va., who were placed in my ward as hopelessly injured. They had all extensive comminuted fractures of the middle and upper thirds of the femur.

They were left at Culpepper Court House at the time our forces under General Pope retreated down the Valley of Virginia, on August 19th, 1862, and of course fell into the hands of the enemy. I remained with them, and only mention the fact, as the insufficient food, &c., which were afforded the men as prisoners in the hands of the enemy, and removed from his base of supplies, must have had a bearing on the prognosis.

I resected the femur in two of the cases, taking out about four inches of the shaft from immediately below the trochanters, and in one case cutting *through* the trochanter major.

They were both fine subjects, young men in perfect health previous to the injury, and had neither been addicted to the use of alcohol. Both died, worn out by hectic from the extensive suppuration.

The third was rather the most promising case of the three, and I determined to make an effort toward conservatism. I accordingly placed his limb on a double inclined plane, attended to the external wound, keeping it clean, &c., pressed out the pus, which accumulated in considerable quantities, and kept up his general strength as well as our circumstances would allow. He recovered with a useful thigh. I regret that I cannot give this case more in detail, but I was afterwards removed from him, and have only obtained the *result* from a professional friend.

The next cases that came under my observation, and partly under my treatment, were sixteen soldiers in the Waters Warehouse Hospital, Georgetown, D. C., under charge of M. F. Bones, Asst. Surg. 12th Pa. Cav. They were all wounded at the second battle of Manassas, August 29th and 30th, 1862, and had lain on the field for from eight to ten days, previous to being removed, and were consequently very much reduced in strength by hunger, thirst, loss of blood, suppuration and fatigue, having been brought forty miles in ambulances, after having lain so long exposed. Many were nearly destitute of clothing, and their wounds were filled with maggots. These facts are noteworthy, as they have a decided bearing on the result.

To these cases were immediately applied Smith's Anterior Wire Splint, put on by means of broad adhesive strips, which served to suspend the limb; and afterwards the whole was covered by a roller bandage, which served to equalize the pressure, exclude the flies, and was removable at pleasure, without disturbing the support of the limb. They had good nutritious diet, stimulants, tonics, &c., as the cases required.

There was but one operation performed; in which I assisted, which was undertaken as a resection through the trochanters, but in the course of the operation it was found that the injury extended into the head of the femur, and it was excised. This patient died in a few days, worn out by the irritation and suppuration consequent on so grave an operation.

The remaining fifteen cases were treated on the conservative plan I have indicated, with five recoveries and ten deaths, an unusually large percent-

age, if we consider the condition of the men when brought into the hospital.

The next case was that of an officer in the Seminary Hospital, Georgetown, D. C. His femur was badly comminuted for from four to five inches, immediately below the trochanters, as a very careful digital examination, with the patient completely etherized, revealed. One fragment, apparently about three inches in length, was lying diagonally across the axis of the thigh, removed entirely from the body of the bone at one end, and imbedded in the muscles on the inner side of the thigh, in apparently dangerous proximity to the femoral vessels. The fracture extended into the trochanters. The operation of resection was decided upon by the surgeons who attended him, but from some reasons which I never fully ascertained, but which I think were the objections of the patient to losing his leg, it was not performed, and it was decided to put his limb into Smith's anterior splint, and make an effort to save it, with, however, grave forebodings for the result.

A point in this case to which I desire to direct special attention is, that there had been an anterior splint used up to the time when an examination revealed so unfavourable a state of the parts, but it had been so adjusted as to defeat the very intention with which it had been used. In consequence of elevating the foot too much by shortening the lower cord by which it was supported, and from placing the point of support too near the head of the patient, instead of making the weight of the body serve as an extending force, the lower fragments of the shaft were pressed upwards, causing the ends of the bone to ride over each other, and giving rise to a great amount of pain, which was entirely relieved by a proper adjustment of the splint. He recovered in three months with a useful thigh, about one and a half inches shorter than its fellow, and I had the pleasure of meeting him in Washington a short time since almost perfectly well. Of course he had all the advantages of good diet, stimulants, tonics, and a careful attention to general symptoms.

The last case I have to record was that of a soldier in the Georgetown College Hospital. About the 1st of January ult. I was invited to assist in the operation of resection of the femur for one of these fractures, which was done in a masterly manner, cutting through the trochanter major about its middle and removing about three and a half inches of the shaft below. The loss of blood was very small, and the operation performed in an unusually short time, but the patient never reacted from the shock of the operation, and died within twenty-four hours, although every means was resorted to to overcome the depression.

The result, therefore, is, that I present a record of twenty-one cases, in the treatment of which there were four operations, three of resection of the shaft of the femur and one excision of its head, *all* of which terminated in death.

In the remaining seventeen cases, in which no operation was performed, but the injured limb placed in *an apparatus producing steady extension and counter-extension*, the strength supported and the general indications for treatment met, there were seven recoveries and ten deaths.

In the resections which I performed I made an effort to preserve the periosteum, and succeeded in a great measure, but I never had an opportunity to ascertain whether an effort at the reproduction of bone had been made by it or not, although I think it highly probable that it was.

The operations were performed sixteen and seventeen days after the reception of the wounds, and a surprising effort at repair had been made in both cases, provisional callus being thrown out in great abundance, covering almost entirely some of the fragments of bone. Some of the smaller of these pieces were evidently dead, but had become enveloped, or, partially so, in the large amount of provisional callus thrown out.

The argument used in favour of resection was that the operation and subsequent contraction of the muscles simplified the character of the wound, converting a compound comminuted fracture, with the adjacent soft tissues filled with fragments of bone exciting irritation and suppuration, into a compound fracture merely; but if we are to have the operation at all, I think it should be performed as soon as possible after the injury, before the vital powers are exhausted by useless efforts at repair. Let us direct those efforts, if possible, toward the union of the two cut ends of bone, after the operation.

But the more rational and successful plan of treating this severe injury appears to be to bring as many as possible of those fragments back to their continuity in the line of the axis of the shaft, *as early as possible*, before provisional callus has been thrown out, interfering with a proper readjustment of the pieces; and allow them to be united as in an ordinary fracture. By so doing the patient is also almost entirely relieved from the pain, which is caused by the pressure of the fragments upon the adjacent tissues.

In fulfilling the above indication, the anterior wire splint, applied by means of broad adhesive strips, offers several apparent advantages.

It can easily be so adjusted as to produce any desired amount of extension, the extending force being so much of the patient's body as you suspend by the splint; and the force can be increased or diminished at pleasure by simply lowering or raising the splint by means of the suspending cord.

It raises the injured thigh off the mattress, keeping it cool, and preventing accumulations of pus, and water if it be used as a dressing, between the thigh and bed, tending thus greatly to prevent excoriations of the skin of the thigh. It affords an easy and convenient access to the external wound, and enables us to cleanse it frequently, thus preventing the accumulation of pus around the nates, and the abrasions of skin resulting in troublesome and painful bedsores, consequent on having those parts bathed in irritating discharges, or at best keeping the patient wet, uncomfortable and filthy; and

lastly, it gives the patient a greater amount of mobility in bed than any other plan of treatment; he can change from one side to the other of his bed, and after a few weeks, can even be lifted with care, to a chair by the bedside, the limb remaining suspended.

The principal objection to the use of this splint is that it favours the burrowing of pus, which, from the elevated position of the knee, will take place in the direction of the pelvis, and from the arrangement of the muscles, especially toward the tuber ischii, but this can readily be prevented by the judicious application of compresses and rollers, and counter openings if necessary, which, however, will not often be called for if proper care has been observed from the outset. Pus will have no greater chance to burrow than in either of the two other plans of treatment which I shall mention, and there are greater facilities for the application of rollers and compresses.

The same indications can be met, more or less perfectly, in different ways.

The double inclined plane produces the same results of placing the fragments in a position favourable to their union, and relieving the patient from pain by keeping up a regular degree of tension on the comminuted bone, which can also be increased or diminished at pleasure by increasing or diminishing the angle, but if the external wound be on the posterior part of the thigh, it is difficult or impossible to get at it to cleanse it, and there are all the disadvantages consequent on having the thigh and nates bathed in irritating discharges. Neither can the thigh be encircled with the hands so well, for the purpose of pressing out of the external wound the collections of pus which are so sure to accumulate, and which *will* burrow if they do not find exit.

This injury can also be successfully treated by simply placing the patient on his back in bed, making extension by means of a weight, cord and pulley, such as is used in the treatment of coxalgia, and supporting the sides of the limb by means of long sand-bags. This is an excellent plan, and has been used very successfully, but if the external wound be on the posterior surface of the thigh, the same disadvantages arise as in the use of the double inclined plane.

The evident deductions from the foregoing results appear to be: that the operation of resection is not advisable, but that it offers a more favourable prognosis as a primary than as a secondary operation; that a *moderate* and *regular* amount of extension and counter-extension, combined with attention to the external wound in regard to cleanliness, &c., preventing accumulations and burrowings of pus by securing it a free exit, and by the judicious use of compresses, supporting the general strength by diet, stimulants, tonics, &c., and a careful attention to general symptoms, present the conditions most favourable to recovery from this grave injury: that it is not so uniformly fatal as has been heretofore supposed: and lastly, that the anterior wire splint affords a plan of treatment which gives to the patient a greater degree of ease and comfort, fulfils the indications for

treatment better, and perhaps affords a greater chance of success and a more favourable record, than any other plan of treatment now in use.

Hoping that this effort may induce others of greater experience and more extended observation to give the results of their observations and their opinions of the proper management of this serious and terribly fatal injury to the general advancement of surgical knowledge, I respectfully submit it to the notice of the profession.

ART. VI.—*A Case of Double Ovariotomy. Patient saved by daily Injections into the Peritoneal Cavity for eight weeks.* By E. R. PEASLEE, M. D., LL. D., Professor of Anatomy, &c.

Aug. 16, 1862.—Mrs. E. L. S——, of Post Mills, Vermont, consulted me in regard to the operation, in her own case, of ovariotomy. She is a highly educated lady, of delicate constitution, and thirty-five years of age; had been married eleven years, but had never conceived; had had an attack of inflammation of the left ovary one year after marriage, and had been treated for ulceration of the cervix uteri two years subsequently to this attack.

She first detected some enlargement of the left side of the abdomen in January, 1860; and in the following May, Dr. Darnell, of Georgia, in which State she was then residing, pronounced the enlargement due to an ovarian tumour. She returned to Vermont in December, 1860, and was tapped for the first time in January, 1861—20 lbs. of fluid having been at that time removed. Up to the present time she has been tapped twenty-six times, the amount of fluid varying between 20 and 30 lbs. at a time. For several months past the intervals between the tappings have been only twelve to fourteen days. Menstruation has continued regularly until its cessation three months since. She has not taken much medicine; took hydragogue cathartics for a time with no good result. Diuretics did not act upon the kidneys at all.

Present condition.—Patient much emaciated and debilitated. Very little appetite, as usual, when the tapping again became necessary. Girth of abdomen forty-two inches. On performing the operation of paracentesis to-day, previously to deciding the question as to the propriety of the operation of ovariotomy, I removed 21 lbs. of fluid, evidently from the peritoneal cavity; when a large tumour could be detected, apparently presenting a constriction dividing it into two portions. Extensive adhesions were detected over its anterior aspect; but, on the whole, the case was considered a favourable one for the operation; and, after stating its dangers to the patient, she was left to decide, after mature reflection, respecting its performance at an early day.

An affirmative decision having been made, I performed the operation on the afternoon of the 30th of August, 1862, assisted by Dr. E. C. Worcester, of Thetford, Vt., Dr. W. B. Porter, of Paper Mill Village, N. H., and my pupils, Drs. Cowles, How, and Chapin.

The temperature of the apartment in which the operation was to be performed was kept at 80° (Fahrenheit), and the air rendered moist by the evaporation of water. A solution of common salt and albumen in water[1] was prepared and kept blood warm, with which to moisten the hands when manipulating the tumour or other contents of the abdomen. The patient was placed upon a table, the pudenda being covered by a diaper; and she was kept under the influence of Squibb's sulph. ether during the operation.

An incision four inches long, extending equally above and below the middle point between the umbilicus and the pubes, was made into the peritoneal cavity, when the adhesions before diagnosticated were found. These were, however, peeled off by passing the hand between the tumour and the parietal peritoneum. The tumour itself, consisting of an aggregation of sacs, was diminished by tapping the largest of them, till it could be drawn out through the incision, when a double ligature was passed through the pedicle and tied round each half of it; when it was cut, and the tumour removed. The tumour was, however, so completely sessile (or in such complete contact with the right side of the uterus) that the ligature could with difficulty be applied; and I had to dissect it upwards from the pedicle one-half inch before the latter could be divided.

There was also an additional band extending across from the tumour to the uterus, which required a third ligature to be tied around it before the tumour was removed. Still another difficulty presented itself which I had not encountered in previous operations. The tumour presented very many vascular tufts on its external surface which gave way from the gentlest manipulation, and this led to a profuse hemorrhage into the peritoneal cavity.

Having removed the tumour just mentioned, and which, before reduction by tapping, was about as large as a gallon measure, I found, on passing my hand into the peritoneal cavity, that still another tumour remained. This was found to be the left, as the mass already removed was the right ovary. It was not quite half so large as the other, and was removed without the occurrence of any hemorrhage; its pedicle being also much longer and easily secured by a double ligature before it was divided. All the blood (and coagula) were then removed with the greatest care from the peritoneal cavity, both by the use of a very fine sponge and by turning the patient nearly upon the face, to allow it, as well as the dropsical fluid which had

[1] Chloride of sodium ʒiv; albumen (white of eggs) ʒvj; water Oiv. This fluid nearly resembles the natural secretion of the peritoneum, and was first used by me in Feb. 1855.

escaped from the sacs, to flow out—the hands being always dipped in the *artificial serum* above mentioned before touching the internal parts. Next, the wound was closed by eight silver sutures penetrating the abdominal walls, peritoneum and all—the five ligatures having been brought out through the lower extremity of the incision. A mere water-dressing, covered by oiled silk, was applied to the abdomen, and the patient was placed in her bed at six o'clock P. M.

The water-dressing to be changed often enough to keep it moist; the catheter to be used every eight hours; the patient to take only milk porridge every two hours for the present; and no medicine to be given till reaction is established, unless stimulants are required.

The following is a condensed report of her progress subsequently to the operation:—

9½ P. M., 3½ hours after the operation. Pulse 100, but intermittent—losing 15 to 30 beats; respiration 16. Complains of warmth and a burning in the feet. Quite restless, feels "very tired," and has a little pain. Had taken a little milk porridge and a teaspoonful of brandy at 9. 10 o'clock, still restless. Opium suppository gr. j; ℥ijss urine. 11 P. M. Pulse a little more regular; respiration 19. Feels tired, but is more quiet. Compress changed. 12 o'clock. Very quiet and comfortable. Reaction well-established. Has slept a little. Took some milk porridge. 2 A. M. Has been quiet during the last two hours, and has taken short naps. Pulse 115 to 120, intermitting 5; respiration 24, easy and regular; ℥ijss urine. Took a little porridge. 5 A. M. Pulse 120; respiration 24; urine ℥ij.

August 31—*morning after the operation.*—7 o'clock. Has been sleeping. Pulse 120, but slightly intermittent. 9½. Pulse 120, but intermits 16; respiration 20; pupils unaffected by opium; tongue slightly furred; skin natural; expression of countenance cheerful. 12. Pulse 116, with ten intermissions; respiration 18. Elix. Opii gtt. xx. 8 P. M. She remains about the same as in the morning. Pulse 120—intermissions ten; tongue a little whiter. As thirsty as usual after being tapped, but no more so. The urine was drawn off at the hours of 10, 4, and 7—about ℥ij each time. Has taken elixir opii gtt. x every second hour; also, once in two hours, two tablespoonfuls of porridge.

Monday, Sept. 1—*Second day after operation.*—8 A. M. Pulse and respiration the same. Brandy ℥ss. No tympanites, no increased tenderness of abdomen. Urine at 12 and 6—℥ij each time. Has slept on each side. Pupils natural. 4 P. M. Pulse 114, but somewhat irregular; respiration 17. Brandy ℥ss. 6¼ P. M. Some pain with eructations. Thinks the brandy disagrees with her. 6½. Vomited. Pil. opii j. 7 P. M. Has been more quiet since vomiting. 10 P. M. A slight flow of blood commenced from the vagina. 12 o'clock. Respiration 16; pulse 113, but weaker. Brandy ℥ij.

Tuesday, third day.—8 A. M. Pulse intermits every third or fourth

beat. Tongue cleaner. Says she is comfortable. Beef-tea instead of the porridge. 10 P. M. Pulse 118, intermits less. Respiration 20. Pil. opii per rectum. Abdomen looks well; no pain; not much tenderness on pressure. She is cheerful, and the countenance wears a good aspect.

Fourth day.—8 A. M. Pulse 108, intermitting 17. Tongue quite clean, and no irritation of stomach. Has chewed a little beefsteak, and has taken beef-tea and brandy at intervals. Vaginal flow increasing. 10 P. M. Pulse 112, but irregular—losing one, two, and three beats. Counting from each intermission it ran thus: 3, 3, 8, 19, 34, 3, 3, 4, 9, 17. Respiration 20. Has been taking brandy ℥j every hour for several hours. Urine increasing in quantity; skin natural. Vaginal flow increasing.

Thursday, fifth day.—8 A. M. Pulse 112, intermissions 12; respiration 17. Takes three tablespoonfuls of beef-tea, and brandy ℥j, hourly. Urine increasing in quantity; catheter no longer required. Vaginal discharge has ceased.

Friday, sixth day.—12½ A. M. Had a chill with cold sweat and "a sinking sensation." Pulse 104, and only slightly intermittent. Brandy ℥ij. 8 A. M. Comfortable again. Appetite good. Wound dressed.

Seventh day.—Pulse 100, steady and no intermissions. Had a very good night; slept well without an opiate.

Eighth day.—Three stitches removed. Wound suppurating where the edges of the skin do not meet (between the sutures), but the deeper parts have adhered. Pil. quiniæ gr. j at 11 o'clock, and another at 5. A little restless at night; Pil. opii gr. j.

Ninth day.—8 P. M. Had a free alvine evacuation spontaneously at noon, followed by some tenderness of the abdomen. Opium suppository gr. j.

Tenth day.—8 A. M. Has taken during the night tinct. opii camph. ℥ss. Less tenderness of the abdomen. Pulse 110—intermitting every six or eight beats. Urine normal.

Eleventh day.—Changed her clothing. The best night yet.

Thirteenth day.—Comfortable since last date. Enema administered, and bowels freely moved. Sat up in bed twenty minutes. All the stitches but two removed.

Sixteenth day.—Comfortable since last date. Pulse steady at 104. ℥ij clear fluid oozed out around the ligatures from the peritoneal cavity. Last two sutures removed. 8 P. M. Bowels freely moved. Some dizziness. Has taken no brandy during the last two days, and it was now resumed.

Nineteenth day.—Was called to see her at 1 A. M., because "she seemed stupid, and it was difficult to arouse her." Quiniæ gr. ss., brandy ℥ij. Although the bowels had been freely moved by hydrarg. cum cretâ and rheum, and injections yesterday, the dizziness and headache increased. The tongue was red, and becoming more and more dry. Feeling sure that these symptoms were due to the presence of decomposing fluid in the peritoneal

cavity, I decided to wash out that cavity. Accordingly at 10 P. M. I passed an elastic bougie (No. 5) into it by the side of the five ligatures; applied to the tube a syringe, and injected a quart of the artificial serum before described, at a temperature of 98° (Fahren.), and then changing the position of the patient, and depressing the outer end of the bougie so as to bring it to a lower level than the other extremity in the peritoneal cavity—thus rendering the tube a syphon—about three pints of very fetid fluid were discharged in the course of an hour.

As it was found necessary to repeat this operation from one to three times daily for the next fifty-eight days, and, as this was the important and peculiar feature of the case, I will give the results in as brief a form as possible, omitting the minor details of the patient's progress.

Twentieth day.—Injected two quarts of the solution, and it ran out turbid and fetid, but not quite as much so as yesterday. Pulse 106; tongue better; appetite good. Liqr. sodæ chlorinatæ gtt. v, quâque sextâ horâ sumendæ. 8 P. M. Injected Oij of the solution, and left it to run out through the syphon.

Twenty-first day.—Syphon has discharged during the night Oiij of thick, creamy-looking, very fetid fluid. She feels better. Pulse 100; less thirst than for several days; appetite good. 7 P. M. Oij injected, and left to run out.

Twenty-second day.—10 A. M. Slept well last night. Has been passing limpid urine freely every few hours. Bowels moved once naturally. Washed out the peritoneal cavity four times—injecting Oj each time—and drawing it out with the syringe. The fluid ran out quite clear the last time. 7 P. M. Ojss of the solution injected at once and left to flow out. It had very little odour, but the operation was repeated in the evening.

Twenty-third day.—10 A. M. Pulse 110, and good. Two semi-fluid evacuations from the bowels since last report. Tinct. opii camph. ʒj. Appetite good. While introducing the tube a fetid gas escaped through it. Injected as usual but the fluid that came away was not very fetid. Pulse, after injection, 104. 8 P. M. Before injecting, applied the syringe to the tube and drew off Oj of somewhat fetid fluid; then injected Ojss, and left to flow out through the syphon. Pulse before injecting 110; afterwards 104. Best day yet.

(The bowels were moved naturally once a day after this date.)

Twenty-fourth day.—10 A. M. Drew off Oss of thick, creamy-looking fluid, by suction with the syringe. Then injected as before. 8 P. M. Drew off ʒiv, very nearly, of thick fluid—not fetid, but quite offensive. Then injected as before.

Twenty-fifth day.—A. M. The fluid drawn off by the syphon last night was quite transparent. Injected Ojss, and, on raising her up in bed, a somewhat thicker fluid came away. Tinct. opii camph. ʒj. 8 P. M. She

was fatigued by the prolonged operation of the morning, but is better now. Fluid comes away clearer after the injection.

Twenty-sixth day.—A. M. Pulse 100, good; tongue do. Syphon fluid clearer during the night. ℥iij drawn by suction—offensive, but thinner. No gas escapes around the tube. One ligature, the highest on the pedicle of the left side, removed.

Twenty-seventh day.—About ℥iv of the thick fluid by suction; but ℥ij of the solution was injected and left in last night. Hitherto the tube had been removed each time after being used, but as the opening through the abdominal wall was getting smaller, and as the introduction of the tube was beginning to cause considerable pain, it was now allowed to remain in, and was seldom afterward removed during the entire period of her convalescence. Being satisfied also that the albumen in the solution underwent decomposition on commixture with the fetid fluid in the peritoneal cavity, I henceforth used the following solution: R. Liqr. sodæ chlorinatæ f℥j, sodii chloridi ℥j, aquæ Oj. M.—instead of the one before mentioned; and I had reason to be perfectly satisfied with the change.

Twenty-eighth day.—Fluid drawn out clearer and odourless. Says she has noticed, during the last two or three days, an escape of air from the vagina in puffs, and also a whitish discharge, about one drachm, three times a day, for about one week. I feared the fetid accumulation in the abdomen had caused ulceration through the vaginal wall, but, on examination, found this was not the fact.

Twenty-ninth day.—A. M. Passed a good night. ℥ij of odourless but thick fluid by suction. P. M. ℥j by suction. Injected fluid ran off clear.

Thirtieth day.—Pulse about the same, 104. The tube causes some irritation, and about ℥j of healthy pus has been discharged around it. ℥iij of the creamy fluid by suction, but there is no offensive odour. Other ligatures not loose yet.

At this time I returned to New York, leaving Mrs. S. under the care of Prof. Albert Smith, of the N. H. Medical Institution, and to him and to the husband of the patient I am indebted for the remainder of this report. I advised them to continue the injections daily, once or twice according to the character and the quantity of the fluid removed, and as long as it continued to be fetid. This was done; the patient always feeling an immediate benefit from each washing out, and relapsing into a languid state if the operation was omitted or too long deferred.

Sept. 30. A. M. pulse 100; ℥ij of the peculiar fluid by suction, and in the evening a like amount. Sat up in bed to eat, for the first time.

Oct. 6. The amount of fluid in the abdomen has been slowly decreasing; only ℥jss has accumulated in twenty-four hours.

16*th.* The abdominal walls have contracted to such an extent that only ℥ij of the dilute solution of chlorinated soda can be conveniently injected

and retained. Since the 6th inst. the experiment has been tried of drawing out all the matter and omitting the injection; but the fetor increased to such an extent that the solution of soda was resorted to again. Sat up to-day in a chair half an hour. Pulse 100. Appetite good. Bowels constipated for several days; moved by enema. Pil. rhei comp. iij produced no effect.

27*th.* Sits up an hour or two at a time, and walks across the room once or twice. Only ʒj of thick fluid removed by suction. Pulse 98.

28*th. Fifty-ninth day.*—She was placed on a mattress in a covered carriage to-day, and carried to her home, twelve miles distant. The journey caused some fatigue, but otherwise no inconvenience.

Nov. 6. Remaining four ligatures were removed. Mr. Smith remarks in a letter: "I think they were held by the knot on the inner side of the abdomen, as pulling has caused no pain for a week past."

From this time onward she gained gradually in strength, her convalescence being interrupted only by a severe attack of constipation and colic, which caused no little apprehension, but she was very skilfully treated by Dr. Worcester (before mentioned), and finally relieved. Less and less matter was drawn from the peritoneal cavity until Nov. 14th, when none whatever could be obtained.

On the 16th of November, seventy-eight days after the operation, her husband writes: "With the consent of Dr. Worcester, I have this morning removed the tube and closed up the opening." The injections had thus been used for fifty-nine days in succession, or from the nineteenth to the seventy-eighth day after the operation.

Jan. 1, 1863. Mrs. S. wrote me to present the compliments of the season, and said she had as few aches and pains as the majority of people have; and up to the 13th of March I hear of her continuing in good health.

Remarks.—1. Successful cases of double ovariotomy are very rare. The first case reported in this country, I think, was one of my own; the operation having been performed nearly twelve years previously to the one now under consideration. In that instance[1] the patient was 24 years old, and unmarried; and it may not be uninteresting to add here, by way of completing the record of that case, that she married about a year after the operation; that she has, of course, never menstruated since that time, nor conceived. She has, however, enjoyed uniform good health, never having had even headaches, periodical or otherwise. With the two exceptions above specified, she is capable of fulfilling *all* the functions attributable to her sex. Neither her external physical conformation nor her mental characteristics have undergone any change in consequence of the absence

[1] See this Journal for April, 1851.

of the ovaries. She is in all respects now, at the age of 36, a splendidly developed woman.

2. The use of large injections into the peritoneal cavity has never been before resorted to, so far as I am aware, except in a case of my own, reported in this Journal[1] seven years ago. It became quite evident after ten days' use of the injections, that this patient's life might be prolonged, other circumstances remaining unchanged, so long as the peritoneal cavity was kept thoroughly cleansed. But it became at length a source of anxiety to know when this necessity might cease to exist. During the last week of their application before I left the patient (*i. e.* up to the seventeenth day of their use), the quantity and the quality of the fluid in the cavity had undergone but very little change. In my first case the injections were continued for only seven days. In the present case they were finally found to be required from one to three times daily, for *fifty-nine days* in succession. In that case I always used the artificial serum before described; in this case the albumen in it underwent decomposition, and a solution of common salt and chloride of soda was found not to be liable to this objection.

3. I have no hesitation in attributing the recovery of this patient (as well as that of the one just alluded to) to the use of the peritoneal injections. The recurrence of the grave symptoms was so certain and so rapid, whenever they were too long delayed, as to leave no doubt on this point. Nor do I doubt that death has occurred after many unsuccessful operations of ovariotomy, from the presence of decomposed fluid in the peritoneal cavity. Had I not resorted to this expedient, I am confident I should have lost two cases out of five. Having done so, all my cases, up to the present time, have been successful. Of course the liability to such accumulations of fetid fluid is confined more exclusively to cases of ovarian tumours combined with ascites. Both of my cases were of that class. It is deemed important to recognize this cause of a fatal termination of the operation under consideration, and to have demonstrated the practicability of its removal.

4. It is interesting to notice the tolerance of a decomposed fluid in contact with it, which was manifested in this case by the peritoneum. The fluid gradually accumulated to not less than a gallon, and was excessively fetid; yet no decided symptoms of poisoning manifested themselves till the nineteenth day after the operation. This shows that absorption from the diseased peritoneal surface is very slow; though it also appeared that it becomes more rapid when the poison has once entered the circulation. And hence the necessity of removing the fluid daily, till all excess of the peritoneal secretion and all decomposition have subsided.

5. The vaginal flow which occurred forty-eight hours after the operation and continued sixty hours, must not be accepted as an attempt at menstru-

[1] See the No. for Jan. 1856.

ation. It occurred in the first of my cases also, and is merely a hemorrhage resulting from the uterine congestion produced by the ligatures. It is, however, a favourable sign, since by relieving congestion, it diminishes the probability of the supervention of inflammation after the operation. A free secretion of urine is also, in this sense, a favourable symptom.

6. I have also used the gum elastic bougie as a *syphon*, in the operation of paracentesis thoracis. The fluid is thus most thoroughly removed.

7. I still attach importance to the use of the *artificial serum* in ovariotomy; and to the elevated temperature and moisture of the air of the apartment, on opening the peritoneal cavity.

8. I prefer the ligature to the *clamp* in all cases. In the present case the latter could not possibly have been applied to the right pedicle; and I know of no case in which either the clamp is for any valid reason to be preferred, or the ligatures are for any valid reason objectionable. Both are used to prevent hemorrhage; and certainly the latter are more reliable than the former in this point of view. And if the clamp is sooner detached, the ligatures, on the other hand, do no harm by remaining. In one of my cases a ligature remained four and a half months without producing the least sign of inflammation, or irritation even, of the peritoneum.[1] It was doubtless held, during most of the time, by granulations in the abdominal walls. I make the ligature of three threads of saddlers' silk, *waxed, but not twisted.*

9. The use of powerful narcotic doses (as advised by some) during the first two or three days after the operation, I consider unjustifiable.

NEW YORK, March, 1863.

ART. VII.—*Analysis of Ninety-three cases of Labour which came under the care of the Author.* By JAMES N. FRASER, M. D., L. R. C. S. Edinburgh, of St. John's, Newfoundland. (Communicated to the "Boston Society for Medical Improvement.")

I. *The number of cases.*—The total number of cases was ninety-three, not including any cases of miscarriage. It must be understood, however, that these do not represent ninety-three different women, as some of the patients came under my care two or more times.

II. *The ages of the women.*—The total ages of the women amounted to 2,645 years, the average age for each being 28½ years. The following

[1] In this case also the bougie remained almost constantly for fifty-one days (from the 27th to the 78th).

table exhibits, in detail, the number of patients delivered, with their respective ages:—

Ages of the women.	Number of women.	Ages of the women.	Number of women.
21 years	1	32 years	7
22 "	4	33 "	2
23 "	9	35 "	1
24 "	4	36 "	5
25 "	7	37 "	1
26 "	13	38 "	1
27 "	4	40 "	1
28 "	15	44 "	1
29 "	8	45 "	1
30 "	5		—
31 "	3	Total,	93

III. *The duration of labour.*—The total duration of labour, calculating as precisely as I could from the first commencement of the pains, amounted to 1,249 hours. The average duration of each case was 13½ hours, being half an hour longer than the average duration in 311 cases occurring in the Edinburgh Maternity Hospital, and recorded by Professor Simpson, of Edinburgh.

The following table shows the duration of the whole labour in each case:—

Duration in hours.	Cases of labour.	Duration in hours.	Cases of labour.
1	in 1 case	13	in 1 case
1½	1 "	14	8 cases
2	2 cases	15	2 "
2½	2 "	16	1 case
3	2 "	18	1 "
4	8 "	20	2 cases
4½	1 case	23	1 case
5	2 cases	24	10 cases
6	10 "	25	1 case
7	3 "	26	2 cases
8	4 "	36	3 "
9	5 "	42	1 case
10	2 "	48	1 "
11	2 "		
12	13 "	60	1 "

IV. *The number of pregnancies.*—The total number of pregnancies for the ninety-three women (not including miscarriages, of which I have no information) amounted to 175—the average number being 1⅞, and the percentage 188$\frac{16}{93}$. The following table exhibits the number of cases, with the corresponding number of the pregnancy in each; by which it will also be observed that first deliveries constitute one-third of the whole:—

Number of the pregnancy.	Number of women.	Number of the pregnancy.	Number of women.
1	31	7	1
2	25	8	2
3	13		
4	11	11	1
5	4		—
6	5	Total,	93

V. *The number of children.*—The children resulting from the 93 labours at the full time (with the exception of two premature cases) were 99 in number. Of these, there were born—

In single births	87
In twin "	12
Total,	99

VI. *The sex of the children.*—Of the ninety-nine children, 53 were males and 46 females; or, 57 per cent. of the former and 49$\frac{3}{23}$ of the latter: of the whole number, 106$\frac{14}{31}$ per cent. These facts, with the proportion and percentage of still-births, are exhibited in the following table:—

Sex of the child.	No. of children.	No. born alive.	No. born dead.	Proportion of still-births.	Percentage.
Male . .	53	47	6	1 in every 9	11$\frac{17}{53}$
Female . .	46	40	6	1 in every 8	13$\frac{1}{23}$
Total,	99	87	12	1 in every 8	12$\frac{4}{33}$

Of these still-births there were born—

Under cranial presentations	6
" breech "	2
" hand "	1
" elbow "	1
" shoulder "	1
" side "	1
Total,	12

In one of the cases of still-birth under cranial presentation the cord was wound thrice around the child's neck; in two others delivery was preceded by uncontrollable vomiting; in one of these labour was premature. In a fourth, delivery was effected by craniotomy. In one of the cases under breech presentation the mother had convulsions during labour; in the second there was prolapse of the cord. In the case of shoulder presentation labour was premature; and in that of the side there was prolapse of the cord. In the case of elbow presentation the child was a twin male. None of the children were born putrid.

VII. *The modes in which the children presented.*—The following table shows in detail the different kinds of presentation, and the number of each respectively, with the percentage:—

Presentation.	No. of cases.	Percentage.	Presentation.	No. of cases.	Percentage.
Head . . .	85	85$\frac{85}{99}$	Side (left) .	1	1$\frac{1}{99}$
Breech . .	4	4$\frac{4}{99}$	Head and hand	1	"
Hand . . .	1	1$\frac{1}{99}$	Breech and cord	1	"
Elbow . .	1	"	Side and cord	1	"
Shoulder . .	1	"	Head and cord	1	"
Foot . . .	1	"			
Face . . .	1	"	Total,	99 cases.	

There was not a case of presentation of placenta, partially or entire.

VIII. *Plural births.*—Out of the ninety-three cases 6 women, or 1 *in every* 15, gave birth to twin children, which appears to me to be a very high average. The percentage in these cases amounted to $6\frac{1}{2}\frac{4}{7}$. The following table exhibits the state and presentations of the twelve children in the six twin cases:—

Presentation.	No. of cases.	No. of children born alive.	No. of children born dead.
Double cranial presentation .	3	6	0
1st child, foot; 2d child, head	1	2	0
1st child, head; 2d child, breech	1	2	0
1st child, head; 2d child, elbow	1	1	1
Total,	6 cases, or 12 children.	11	1

The average mortality in the twin cases was 1 in 12, and the percentage $8\frac{1}{3}$. The sexes of the twin children were as follows:—

In 2 cases, both children male	4
In 2 cases, both children female	4
In 2 cases, 1st child male, 2d child female	4
Total, 6 cases.	12

Thus in the twin cases there was an equal number of male and female children.

IX. *The mode of delivery.*—The following table shows the number and percentage of those delivered naturally and by artificial means:—

Mode of delivery.	No. of cases.	Percentage.	Proportion.
By natural pains . . .	75	$80\frac{8}{1}\frac{9}{1}$	1 in $1\frac{1}{4}$
By artificial means . .	24	$25\frac{6}{9}\frac{6}{1}$	1 in 4
Mode of artificial delivery.			
By podalic version . .	4	$4\frac{3}{9}\frac{8}{1}$	1 in 23
By cephalic version . .	1	$1\frac{7}{9}\frac{7}{3}$	1 in 93
By forceps	18	$19\frac{1}{3}\frac{1}{1}$	1 in 5
By craniotomy . . .	1	$1\frac{7}{9}\frac{7}{3}$	1 in 93

Turning was adopted in three cases for preternatural presentations, and in one where labour was premature, and was preceded by uncontrollable vomiting; in this case the head was almost beyond reach, and great difficulty was experienced in attempting to apply the forceps; consequently, turning was had recourse to in order to hasten delivery. In the case of cephalic version labour was premature, and the fœtus was malformed.

X. *The instrumental deliveries.*—It will be observed from the foregoing table that the forceps were used in an unusually large proportion of cases, and my principal object in drawing up these papers is to show the utility and comparative safety in the early and careful application of these instruments, unless there be some positive contraindication to their use. It will be seen by referring to the general statistical table, that all the mothers

delivered by the forceps recovered, and only two of the children delivered by the same means were born dead; and in one of these cases labour was premature, and in the other of sixty hours' duration; so that in neither case can the death of the child be attributable to the use of instruments. I dare say that in some of these cases the administration of ergot and the use of other stimulating means might have been sufficient to effect delivery; but I believe the adoption of such measures would be more likely to prove injurious to both mother and child than the early and careful use of the forceps, as labour would thereby be prolonged and, consequently, the danger to mother and child become greater; there would also be a greater probability of complications arising. These views, I think, are borne out by the following recognized principles in midwifery: 1. "The maternal mortality attendant upon parturition increases in a ratio progressive with the increased duration of labour. 2. The infantile mortality attendant upon parturition increases in a ratio progressive with the increased duration of labour. 3. The mortality to the infant and mother is *tenfold* greater in labour prolonged than in labour terminated within twenty-four hours. 4. The liability to most of the morbid complications connected with labour becomes increased in proportion as the labour is increased in duration. 5. The danger of instrumental delivery depends more upon the previous duration of labour than upon the operation employed." (Professor Simpson's Lectures, 1851–52.) Now it will be observed (general statistical table) that where the forceps were used labour was completed within twenty-four hours in two-thirds of the cases, and no injurious after-effects followed in any of these cases; and convalescence was protracted in only two of the whole number. In one of these cases the patient suffered from ante and post-partum hemorrhage, and miscarried about six months prior to delivery, there having been twin conceptions, one fœtus dying. The other was a case of twin labor, where one child presented by the elbow and was turned, so that in this case the injurious after-effects were more likely owing to the manual than to the instrumental interference. In my practice I have not confined myself to the rules and regulations so specially laid down in some obstetrical works for our guidance in the use of the forceps, nor do I believe these to be so essential or of so much importance as they are said to be. I may remark that I have always used Simpson's long forceps.

Craniotomy was had recourse to in one case where the head of the child was arrested at the "brim," in consequence of contraction of the conjugate diameter. In this case I first tried to deliver by turning—brought down a foot, but completely failed in delivering. I have a full record of the case, which I will be happy to communicate if thought of sufficient value.

XI. *The complicated labours.*—The following table contains a list of the complications observed in the foregoing cases, with the respective numbers, proportion, and percentage of each. There are four cases of "slight

disproportion" mentioned in the table—such a condition ought not, perhaps, strictly speaking, to be considered as a "complication"—nevertheless they were cases where I thought it advisable to use the forceps at an early stage of labour.

Complication.	No. of cases.	Proportion.	Percentage.
Convulsions	2	1 in 46½	2$\frac{14}{93}$
Hemorrhage	3	1 in 31	3$\frac{7}{31}$
Puerperal fever . . .	4	1 in 23	4$\frac{23}{93}$
Contraction at brim . .	3	1 in 31	3$\frac{7}{31}$
Inertia of uterus . . .	4	1 in 23	4$\frac{23}{93}$
Rigidity of os . . .	2	1 in 46½	2$\frac{14}{93}$
Syncope	2	1 in 46½	2$\frac{14}{93}$
Malpresentation . . .	6	1 in 15	6$\frac{14}{31}$
Uncontrollable vomiting .	2	1 in 46½	2$\frac{14}{93}$
Slight disproportion . .	4	1 in 23	4$\frac{23}{93}$
Prolapse of cord . . .	3	1 in 31	3$\frac{7}{31}$
Total,	35		37$\frac{23}{93}$

I omitted mentioning that one of the mothers died; in this case there was an extremely torpid state of the bowels, which could not be brought into action by any means. This serious condition was followed by alarming and uncontrollable vomiting, which persisted for four or five days. Labour, which was premature, supervened, and to hasten delivery the child was turned; but the patient died twenty-eight hours afterwards. I am of opinion that the fatal issue was not consequent upon parturition, but was the result of prior prostrating causes. In conclusion, I have only to observe that the ninety-three cases of labour were recorded consecutively as they occurred in my practice, none having been *selected;* therefore, the data upon which the preceding calculations have been based may be relied upon, as all the patients came under my own immediate care and observation, and the particulars regarding them were recorded at the time of their occurrence.

P. S. I have to acknowledge my indebtedness to Professor Simpson's obstetric works (first series) for the construction of most of the preceding tables.

No. of Case.	No. of Pregnancy.	Age of Patient.	Presentation.	Duration of Labour.	Mode of Delivery.	Nature of Complication.	Sex of Child.	Recovery or death of Mother.	Life or death of Child.	Remarks.
1	1	26	Head	About 12h'rs	Natural pains		M.	Recovery	Alive	Convalescence uninterrupted.
			"	20 "	" "		M.	"	"	Convalescence satisfactory in every respect.
2	1	22	"	20 "	" "		F.	"	Dead	Made a wonderfully rapid recovery. Had convulsions with first child also.
3	2	29	Breech	7 "	" "	Convulsions	F.	"	Alive	Puerperal fever very severe. After its subsidence nearly died of dysentery. Had convulsions with first two children. This child died of convulsions when three months old. Under all circumstances convalescence was wonderfully rapid.
4	3	31	Head	4 "	" "	Puerperal fever, &c.	M.	"		
5	2	23	"	6 "	" "		M.	"	"	
6	1	27	"	12 "	" "		F.	"	"	Convalescence uninterrupted.
7	4	32	Hand	24 "	Podalic version	Malpresentation	F.	"	Dead	This patient had convulsions with first two children. Puerperal fever and dysentery with third (cases 2 & 4). In the present instance the liquor amnii escaped sixteen hours before delivery. Uterine action very strong. Recovery rapid.
8	2	24	Head	16 "	Natural pains	Alarming syncope	M.	"	Alive	There was no sign of external or internal hemorrhage. Syncope lated four hours. Had a similar attack with first child. I think, arose from "shock." Convalescence tedious, but otherwise satisfactory.
9	1	22	"	12 "	" "		M.	"	"	Convalescence uninterrupted.
10	5	33	"	6 "	" "		M.	"	"	Recovery rapid, and very satisfactory.
11	1	26	"	60 "	Forceps	Inertia of uterus	M.	"	Dead	Retention of placenta from "hour-glass contraction." No injurious after effects followed delivery. Patient lived twelve miles from town. Made an excellent recovery.
12	1	23	"	20 "	Natural pains		M.	"	Alive	Convalescence normal. Child died when 3 months old. Suffered from diarrhœa, &c.
13	1	25	"	14 "	" "		F.	"	"	Convalescence uninterrupted.
14	2	26	"	12 "	" "		F.	"	"	Had very severe convulsions during first labour (child living). Convalescence rapid.
15	1	28	"	36 "	" "	Rigidity of os	F.	"	"	Recovered without any untoward symptom.
16	2	29	"	24 "	Forceps	Ante. P. part. hemorrhage	F.	"	"	About 6 months prior to delivery *miscarried*, so that there must have been "twin conception," one fœtus dying. Patient was extremely nervous. Convalescence protracted—child died shortly afterwards.
17	3	32	"	10 "	Natural pains		F.	"	"	Convalescence quite satisfactory.
18	4	40	"	36 "	Forceps	Contr. ant. post. diam.	F.	"	"	No bad symptom followed; convalescence very satisfactory.
19	3	29	"	12 "	Natural pains		M.	"	"	Convalescence normal.
20	1	26	"	12 "	" "		F.	"	"	Recovery uninterrupted.
21	2	28	"	14 "	" "		M.	"	"	Of lax habit of body; labour easy; made an excellent recovery.
22	1	26	"	6 "	" "		M.	"	"	Convalescence uninterrupted. Had to discontinue nursing child.
23	2	23	"	8 "	" "		F.	"	"	Recovery uninterrupted.
24	2	28	"	9 "	" "		M.	"	"	Made an excellent recovery.
25	3	26	"	14 "	" "	Alarming syncope	F.	"	"	Had similar two former labours. Mother was seized in the same way, and died, so far as I could learn from "shock." Convalescence in present case protracted.
26	1	21	"	24 "	" "		M.	"	"	Of very delicate constitution, but made an excellent recovery.

No. of Case.	No. of Pregnancy.	Age of Patient.	Presentation.	Duration of Labour.	Mode of Delivery.	Nature of Complication.	Sex of Child.	Recovery or Death of Mother.	Life or death of Child.	Remarks.
27	1	22	Head	9 h'rs	Natural pains		F.	Recovery	Alive	Convalescence normal.
28	2	25	"	12 "	" "		M.	"	"	Made a very good recovery. Child delicate; died of bronchitis when three or four months old.
29	1	28	Elbow and head	24 "	1st turned, 2d forceps	Malpresentation and peritonitis.	M.F	"	Boy d. g. liv.	Convalescence very tedious, but got quite well. Tried "Marshall Hall's method" with boy, but failed.
30	1	25	Head	1½ "	Natural pains		M.	"	Alive	Recovered rapidly.
31	2	30	"	2½ "	Forceps	Slight contr. of brim	M.	"	"	Made a very good recovery.
32	1	32	"	48 "	" "	Inertia of uterus, and twins	F. 2	"	"	This patient had been under the care of a "midwife." When I visited her, labour was quite "powerless." Recovered rapidly. Subsequently suffered from "mammary abscess."
33	1	29	Breech	26 "	Natural pains	Prolapse of cord	M	"	Dead	Had been under care of a "midwife." Made a very good recovery.
34	1	28	Head	8 "	" "		F	"	"	Convalescence protracted; patient nervous and irritable; cord thrice round child's neck.
35	2	27	Shoulder	12 "	Cephalic version	Malpresentation	F.	"	"	In this, as in case 34, labour was premature, 7th and 8th month. Made a good recovery.
36	1	22	Left side	25 "	Podalic version	Malpres. & pro. of c'd	M.	"	"	Had great difficulty in delivering the head. Made an excellent recovery.
37	6	35	Head	5 "	Natural pains		M.	"	Alive	The liquor amnii escaped 48 hours prior to the supervention of labour pains. No hemorrhage. Recovery rapid. Child apparently dead; restored by "Marshall Hall method;" preserved for 30 minutes.
38	4	28	"	10 "	" "	Slight hemorrhage	M.	"	"	The liquor amnii, as in case 37, escaped two days prior to the occurrence of labour pains. There was slight hemorrhage. Ergot had no effect in inducing uterine action; neither had it any injurious effect on child.
39	1	26	"	2½ "	" "	Twins	F. 2	"	"	There was only one placenta. Recovered rapidly. Subsequently suffered from mammary abscess.
40	2	28	"	9 "	" "		M.	"	"	Child weighed 9½ pounds. No liquor amnii escaped until after expulsion of fœtus. Of this I am certain, as I was in close attendance upon the case from the commencement of labour. How explained? Recovery good.
41	3	24	"	14 "	" "		M.	"	"	Uninterrupted convalescence.
42	1	29	"	23 "	" "		F.	"	"	Made a good recovery.
43	4	28	"	12 "	" "	Conv'l. & hæmoptysis	M.	"	"	Recovered without any untoward symptom.
44	2	32	Breech	6 "	" "		F.	"	"	Convalescence uninterrupted.
45	1	25	Head	7 "	" "		M.	"	"	Suffered from abdominal pain and hæmorrhoids for some time afterwards, but got quite well.
46	3	30	"	4 "	" "		M.	"	"	Made an excellent recovery.
47	1	29	"	11 "	" "		M.	"	"	Convalescence rapid.
48	4	36	"	12 "	" "		F.	"	"	Made a good recovery.
49	1	28	"	36 "	Forceps		M.	"	"	Pains irregular and inefficient. Passage unusually small. Made a very good recovery.
50	4	38	"	6 "	Natural pains		F.	"	"	Last stage of labour extremely rapid. Convalescence normal.
51	2	28	"	4½ "	" "		M.	"	"	Convalescence uninterrupted.

No. of Case.	No. of Pregnancy.	Age of Patient.	Presentation.	Duration of Labour.	Mode of Delivery.	Nature of Complication.	Sex of Child.	Recovery or Death of Mother.	Life or death of Child.	Remarks.
52	2	28	Head	18 h'rs	Natural pains		M.	Recovery	Alive	Eighteen months previously had a miscarriage caused by a blow. Recovery good.
53	1	26	"	24 "	" "	Severe vomiting and purging.	F.	"	Dead	Had a severe attack of measles a week before, followed by bronchitis, and then vomiting and purging. I proposed inducing labour, which, however, occurred naturally, and was aided by ergot. Vaginal passage very small. She suffered from gastric and intestinal irritation for three weeks. Got quite well.
54	2	23	"	4 "	" "		F.	"	Alive	
55	1	23	Face	15 "	Forceps	Malpresentation	F.	"	"	Pains regular and severe, but no advance. Liquor amnii escaped 11 hours before delivery. Recovery good.
56	6	33	Head and Breech	3 "	Natural pains	Twins	M. 2	"	"	1st presented by head, 2d by breech. There were two separate placentæ. Convalescence uninterrupted.
57	4	30	H. & hand	12 "	" "	Malpresentation	F.	"	"	Convalescence uninterrupted.
58	3	25	Head	3 "	" "		M.	"	"	Of a very nervous temperament. Made a good recovery.
59	4	27	"	4 "	" "	Ante partum hem'ge	F.	"	"	Had no attack of syncope as on former occasions. Convalescence uninterrupted.
60	2	26	"	1 "	" "		M.	"	"	Made an excellent recovery. Was only an hour and a half ill in first labour.
61	6	36	Foot and head	8 & 13	Forceps (2d)	Twins and S. dis.	M.F	"	"	The 1st presented by the foot, and was born 5 hours before the 2d, which was delivered with membranes entire. There was only one large placenta. Made a very good and rapid recovery.
62	1	23	Head	24 "	Natural pains		M.	"	"	Pains very severe; parts unyielding; passage small. Made a good recovery.
63	5	32	"	24 "	Forceps	Labour powerless	M.	"	"	Recovered rapidly, and without any untoward symptom.
64	3	27	"	12 "	Natural pains	Twins	M. 2	"	"	Convalescence uninterrupted. There was only one placenta.
65	7	36	"	10 "	" "		F.	"	"	The liquor amnii, as before, escaped two days prior to delivery. After-pains very severe, caused by "clots." Slight abdominal irritation for a few days. Recovery satisfactory.
66	2	23	"	5 "	" "		F.	"	"	Patient very delicate Made an excellent recovery.
67	8	36	"	6 "	" "		M.	"	"	After-pains very severe. Made a good recovery.
68	11	45	"	11 "	" "		F.	"	"	Besides being 11 times pregnant going to full period, had 10 *miscarriages*. Suffered from slight syncope for a few hours after delivery, otherwise convalescence was uninterrupted.
69	2	28	"	4 "	" "	Prolapse of cord	M.	"	"	Convalescence uninterrupted.
70	5	29	"	6 "	" "		F.	"	"	Liquor amnii unusually great in quantity; after-pains very troublesome. Made a good recovery.
71	3	29	"	2 "	" "		M.	"	"	Convalescence uninterrupted.
72	1	23	"	4 "	" "		F.	"	"	Recovered rapidly—child very small—had jaundice; but was soon convalescent.
73	2	31	"	12 "	Forceps	Slight disproportion	M.	"	"	Pains during last four hours very severe, but ineffectual. Convalescence uninterrupted.
74	2	32	"	2 "	Natural pains		M.	"	"	Recovery normal.
75	2	26	"	4 "	" "		M.	"	"	Labour very severe—child large. Made an excellent recovery.
76	1	28	"	15 "	Forceps		M.	"	"	No advance after head had entered fully into "cavity." Made an excellent recovery. The cord was thrice round the child's neck.

No. of Case.	No. of Pregnancy.	Age of Patient.	Presentation.	Duration of Labour.	Mode of Delivery.	Nature of Complication.	Sex of Child.	Recovery or death of Mother.	Life or death of Child.	Remarks.
77	1	25	Head	24 h'rs	Forceps	Inertia of uterus	F.	Recovery	Alive	Head stationary in vaginal cavity. Patient lived 14 miles from town. Made a good recovery.
78	1	26	"	26 "	" "		F.	"	"	Pains inefficient. Liquor amnii escaped 8 hours prior to delivery. Convalescence uninterrupted.
79	2	30	"	2½ "	Natural pains		F.	"	"	Slight shock followed delivery, but it soon passed off. Recovered rapidly.
80	3	26	"	4 "	" "		M.	"	"	Recovery normal. Some time afterwards suffered from severe pain along course of right ureter.
81	1	28	"	14 "	Forceps	Slight disproportion	F.	"	"	Pains were regular and tolerably severe, but inefficient. Recovered rapidly.
82	3	30	"	6 "	Natural pains	" peritonitis	F.	"	"	Suffered from fissured nipples; otherwise made an excellent recovery.
83	5	44	"	24 "	Craniotomy	Contract. long. diam. and puerperal fever	M.	"	Dead	Pelvic abscess and great œdema of the legs followed puerperal fever. The patient continued for a long period in a critical state. Pus escaped in large quantities per vaginam. Examined with speculum, but could not detect anything abnormal. Ultimately got well. (*Have a full report of case.*)
84	6	31	"	6 "	Natural pains		F.	"	Alive	
85	4	26	"	14 "	" "		M.	"	"	Convalescence uninterrupted. Had a miscarriage twelve months previously.
86	3	28	"	42 "	Forceps	Rigidity of os	M.	"	Dead	Last labour extremely severe, and, I think, os uteri was slightly ruptured anteriorly, judging from feelings and symptoms as explained by patient. Head made no advance after entering cavity of pelvis; then used forceps. Placenta very much enlarged, and extremely soft and lacerable. Recovered rapidly.
87	6	36	"	8 "	Natural pains		M.	"	Alive	
88	2	24	"	9 "	" "		F.	"	"	Convalescence very satisfactory. Cord twice around child's neck.
89	2	28	"	6 "	" "		M.	"	"	Rapid convalescence. Was extremely ill with first child (Case 53).
90	8	37	"	14 "	Podalic version	Extreme vomiting, constipation and bronchitis	F.	Died	Dead	In this case labour was premature, 7th month; a severe attack of bronchitis was followed by uncontrollable retching and vomiting, and was preceded by a remarkably torpid state of the bowels, which could not be got into action by any means. The fatal issue was not consequent upon labour, but, I believe was the result of the previous bronchitis and vomiting, especially the latter.
91	4	25	"	14 "	Natural pains		F.	Recovered	Alive	
92	4	32	"	7 "	Forceps	Slight disproportion	F.	"	"	Pains regular and very severe. During the last three hours no advance whatever was made. Liquor amnii escaped four hours before delivery. Applied the forceps, and delivered with facility. Recovered rapidly.
93	3	24	"	9 "	Natural pains		F.	"	"	Slight abdominal tenderness for two or three days, otherwise convalescence was uninterrupted.

ART. VIII.—*On Silver Wire Ligatures.* Read before the Brodie Med.-Chir. Society, Frederick City, Md., Dec. 1862. By REDFERN DAVIES, of Birmingham, England, now acting Assist. Surgeon, U. S. A.

IN the summer of 1858, being desirous of healing a vesico-vaginal fistula of very large size, I carried out exactly the operative measures advocated by Dr. Marion Sims. But whether from the size of the fistula, from defect in applying his silver clamps and wires, or from some bungling in the operation, I failed completely, although I was at the same time perfectly satisfied with the behaviour both of the clamps and wires.

Three years ago, having to treat a bad case of elephantiasis of the leg, I followed the means of cure first, I believe, both proposed and carried out by Dr. Carnochan. His plan of treatment consisted in cutting off the main arterial supply of blood to the limb, by tying the femoral artery at the apex of Scarpa's triangle. But deeming that I should effect the same result by tying the popliteal artery, and by reason of its being further removed from the trunk of the body, obviate some of the dangers attendant upon ligaturing the femoral, I tied the popliteal artery, and with a silver wire for a ligature. This came away on the twenty-first day, and the result of the operation was an almost complete diminution of the size of the limb to its natural dimensions.

I would particularly draw the attention of this meeting to this case, because it has been considered, both in New York and here, that though silver wire may be useful in tying arteries after amputations, it is not advisable to do so in their continuity. The best, most concise, and accurate description of the effects produced upon an artery by its ligation, that I know of, is in "Mr. Guthrie's Commentaries on the Surgery of the War." He says:—

"Where a round and small ligature is properly applied to an artery of a large size, such as the femoral, the sides of the vessel are brought together in a folded, plaited, or wrinkled manner; the ancient middle and inner coats of the artery, including the modern four, are divided, while the outer one remains entire and apparently unhurt.

"If the ligature be removed, an impression or indentation, made by it on the artery, will remain as a mark; and if the artery be slit open in a careful manner, the division of the inner coats will be obvious."

And again, he says:—

"The inner and middle coats formed by four distinct layers or structures, are not only divided, but the inner ones particularly seem to be curved inwards on themselves, so that the cut edge of one half or side is not applied to its fellow in the usual way of two surfaces, but by curving inward meets its opponent on every point of a circle, and in this way forms a barrier inside that of the external coat, which is tied around it by the ligature; so that in fact when a small ligature is firmly tied, its direct pressure is not applied to the inner coats, which

have been divided and curled away from it, but to the two layers of the outer coat which are in consequence of that pressure made to ulcerate or slough.

"The cut edges of the four inner layers being from this provision of nature perfectly free, are capable of taking on the process of inflammation which stops at the adhesive stage. This they do by the effusion of lymph or fibrin both within and without, to a greater or less extent as the case may require."

I have frequently tested the truthfulness of this description, by examining arteries, after they have been tied with silk, both upon dead and living subjects, and have had occasionally opportunities of doing so after a ligation has been made by a silver wire: the result of my observations has been, that their effects were identical, and that they corresponded with Guthrie's account.

On October 24, 1862, a patient of Dr. Porter's, upon whom I had tied the arteries with silver wire after an amputation of the leg four days previously, died. Within the posterior tibial artery, the only one I was enabled to examine, I found that for half an inch above the site of ligation the blood was firmly coagulated, the internal and middle coats of the artery were uniformly cut through, and that there was as completely organized a structure (as could be expected in so short a time) between and around them.

Allowing, then, that a ligature of silver wire acts as well as a silken one does, is any advantage to be ascribed to it? or is it a mere change of the material constituting the ligature?

I believe that there is a material advantage in a silver wire ligature over the usual silken one.

And that this advantage consists in the capability of silver wire for remaining in tissues nearly if not quite innocuous.

Thus, while the artery is undergoing its process of obliteration, a silver wire ligature does not of itself constitute a focus for purulent secretion, permeating tissues which we are endeavouring to unite by immediate adhesion, and these tissues temporarily weakened by their supply of blood being diminished.

Of the harmlessness resulting from silver wire remaining in living tissue, I have been for some time struck.

In a girl upon whom I operated for staphyloraphy, nearly four years ago, a silver wire still remains; it is the lowest one of three sutures that I inserted; at the time of the removal of the other two, not being satisfied with the union of the soft palate, I permitted it to remain, and was not allowed afterwards to remove it as it occasioned no inconvenience.

Just two years ago, I had operated on a case of vesico-vaginal fistula, by simply uniting the revivified edges of the fistule with silver wire sutures. On the tenth day of their insertion I intended to remove them, but from an accident was unable to do so for three months, when I found the case perfectly cured.

In the *London Medical Times* (I think for July, 1859) I have recorded and illustrated by a woodcut of the parts implicated, a case in which I had attempted a radical cure of hernia on a woman. I had operated by the method described in *Druit's Surgery* as one suggested by me.

The patient on the eighth day after operation died from the consequences of intussusception of the bowel, on the opposite side to the one I had operated upon. The parts implicated in the operative procedure demonstrated well the perfect immunity from inflammatory process with which silver wire had perforated peritoneum even in three places.

In a case which I published in the *Lancet*, July, last year, and which is recopied in *Braithwaite's Retrospect of Med. and Surg.*, I say:—

"A patient, aged 17 years, was admitted into the Birmingham Workhouse Infirmary on the 10th of December, 1858. He was the subject of varicocele on the left side, which had existed for three years, and to so great an extent as to prevent him from following his employment.

"Being desirous of radically curing him, I adopted the method of M. Ricord, which I had seen him perform with success, but instead of using the silken ligature which he used, I tried to do the same thing with silver wire, namely, between the vas deferens and the veins I passed, by means of a needle, a double wire; and by the same apertures in the opposite direction, anterior to all the veins, another wire. By engaging one free end through the loop of the other one on both sides, the veins were, by traction on the wire, compressed. This traction was kept up continuously by means of an elastic watch-spring bent in the shape of a horseshoe.

"In ten days' time, thinking the varicocele cured, and wishing to remove the wires, I tried to do so, and found I could not, though it was easy enough with the silken ligatures. I therefore cut off the wires as short as I could, trusting to the innocuity of silver wires to cause no harm. In another week the punctures were well healed, and he was discharged, the varicocele then appearing perfectly cured. Seeing him again in about a year's time, upon examination I found that all things remained as when he left; and he stated that he had resumed his work immediately upon leaving. He himself was totally unaware of there being any wires in his scrotum."

But as a wire of silver is a foreign body to the tissues, it should therefore be treated as such, removed in general, and left alone when its removal is undesirable in any particular case.

In conclusion I would say, that when left temporarily in the soft parts—as a ligature or suture—I have observed that it creates a surprisingly *small amount* of irritation to them, and am very glad that the same fact has been similarly noticed and spoken of to me by those who have had the fullest opportunities of noticing the effects produced by silver wire ligatures in cases of amputation under their care.

ART. IX.—*Ovarian Dropsy treated by Iodine Injections.* By D. G. THOMAS, M. D., of Utica, N. Y.

PHYSICIANS who have had the care of many cases of ovarian dropsy, have no need of any statements from me asserting its fatal character, and our inability to arrest its progress by medical treatment. It is true that so long as the enlargement does not interfere with the general health and comfort of the patient, and so long as its discomforts can be borne without too much suffering, it is best to leave the disease without interference from art. But in almost all of these cases a time does come when surgical aid can alone offer a chance for relief. Paracentesis is the simplest mode of surgical treatment, but the relief obtained by it is almost invariably only palliative. It is true that occasionally cases have been reported cured by this operation; some change having been produced in the secreting surface of the sac, sufficient to arrest the further progress of the disease. The first operation is not devoid of danger, but this is much lessened in the succeeding ones which may be required. From a report published in the *London Medical Gazette* in 1836, every 5th first operation was fatal. This is a much greater ratio of mortality than is shown to occur by more recent statistics. From this report it would appear that after simply tapping and evacuating the cyst, the average duration of life is eighteen months. From recent statistics the ratio of mortality from first operations is shown to be about one in 12 or 14.

The formidable and dangerous operation of extirpation will seldom be had recourse to, if a safer and more promising operation is within the surgeon's reach. For the last few years, the profession has been looking for safer means in the use of injections, applied on the same principles of action as they have been in cases of hydrocele.

Velpeau, in 1843, was the first to suggest the use of iodine injections in these cases. M. Boinèt afterwards carried out the practice systematically in France, and brought it before the profession as a recognized operation. Velpeau furnished the first reliable report of cases thus treated, at a discussion before the French Academy of Medicine, on the surgical management of ovarian dropsy. From this report of 110 cases injected 64 were cured, 36 relieved, and 10 died. The number of deaths is one in every 11 cases injected, about the same ratio of mortality that occurs from tapping. Professor Simpson estimates the number of cures of those injected at about one-third, but in those cases where a permanent cure has not been obtained, the refilling of the sac has been delayed, and the general health greatly improved. The probability is that had Velpeau waited a longer time after his operations before reporting them, that some of the cases he reported cured would have been proved to be only in a measure relieved. Dr. Allison,

of Indiana, in 1846, used an injection of tincture of iodine in an ovarian cyst which he had several times evacuated, and succeeded in obliterating the sac; and this is the only case which I can find that has been reported in the United States.

Professor Simpson first applied the remedy in 1851. He has used it in between forty and fifty cases, and only one death has occurred as the result of the injection. In this case the sac was very large, and injected with tinct. of iodine immediately after the first evacuation. Symptoms of collapse came on, and the case terminated fatally in six or eight hours. From this report of Professor Simpson the operation does not appear to be attended with a great degree of danger. He reports the three following results to be obtained: About one-third are perfectly cured. A part of the remainder are greatly relieved, and life prolonged; while in a few cases but little effect is produced. Multilocular cysts that are small cannot be successfully injected; while an exalted and feverish state of the system, or symptoms of inflammation of the sac, would contra-indicate any operation until such conditions had been corrected. Having during the last year applied the remedy successfully, I propose to report briefly in detail the several steps in each operation, and the effects of each injection.

1861. *Dec.* 30. I was called to visit Mrs. J——, aged 65, then a resident of Albany, but at the time visiting a daughter in the city of Utica. She had lost much flesh, had a very fetid breath, slightly furred tongue, a tolerably good appetite; and a haggard and anxious expression of countenance. The abdomen was greatly distended. After a careful examination of her case and its history, I concluded it was a case of ovarian dropsy, and suggested to her and her friends the course which was afterwards adopted, as the one most likely to lead to a successful issue. Dr. Coventry saw her with me the next day, and she was put under treatment for the purpose of correcting in some measure her general health, although the absorption of the fluid was not lost sight of, in the remedies selected. The secretion or the kidneys had for a long time been small in quantity, and was not particularly increased by the treatment. As no change except a slight amelioration of the more urgent symptoms had been produced, on the 15th of January, 1862, assisted by Dr. Coventry, the trocar was used, and nine quarts of a ropy fluid were drawn off, which was quite transparent until near the last, when it became of a slight coffee ground color, with flocculi in small quantities floating in the fluid. But slight disturbance followed the operation, and after four days she was put on the internal use of Lugoll's solution of iodine. She improved in health and spirits, and February 3d, returned to Albany. The sac was evidently refilling when she left. She came to Utica again, and on the 10th of March the operation was repeated, and six quarts withdrawn. The injection of the sac was delayed for this time, to allow the system to become more accustomed to the changes it

might induce, and thus render the operation less hazardous; we were treading on untried ground to us, and were anxious to give our patient the benefit of great care and prudence, also believing it better to operate before the sac was so much distended. Her general health has remained about the same, but perhaps slightly improved. She returned from Albany the second day of April, and on the fourth, assisted by Dr. Coventry, at half-past twelve, I drew off three quarts of water, ropy, but transparent, and free from any flocculi or coffee ground appearance. Injected four ounces of fluid at blood heat, containing 16 grs. of iodine, and 60 of the iodide of potassa, and after pressing the sides of the sac so as to bring every part of it in contact with the fluid, drew it off, by using the glass syringe to take it up, at the same time the walls of the abdomen were firmly supported with the bandage and the assistants. The contact of the fluid with the inside of the sac produced severe pain; she suddenly became faint, and was covered with a cold perspiration. Gave her hot camphor sling, applied a plaster to the puncture, put her in bed, and supported the abdomen with a firm bandage. Gave her a pill of opii 1 gr., calomel 1 gr., camphor 2 grs. In the course of half an hour the colour began to return to her face, and reaction soon became established. The pain and uneasiness continued, and at 3 P. M. the pill was repeated. 8 P. M. The pain in the bowels is relieved. The pulse is frequent with considerable force. There is uneasiness in the abdomen and pain in moving about in the bed, and tenderness of the whole body. Pill to be repeated every four or six hours, as may be required.

5*th*. 9 A. M. Has had a comfortable night, and slept several hours. The pulse it less frequent, but has more force. The same tenderness of the bowels and body continues, with a decided increase in the fulness of the abdomen. Simple farinaceous diet. From this day she continued to improve steadily, until the 17th, two weeks after the injection, when she returned to Albany feeling quite well, although there was some evidence of refilling of the sac.

May 1. Came back from Albany yesterday. Has been quite well, but has felt more debilitated since the last operation. There has been some increase of the effusion, but it has not been as rapid as before. The walls of the sac seem much more thin and soft. Deemed it prudent to wait a few days and watch the progress of the case.

12*th*. At 11.30 drew off three quarts and one pint of thick ropy fluid, of a light green colour. Injected 48 grs. of iodine, 180 grs. of iodide of potash, in 8 ounces of water at blood heat. She had taken 30 drops of McMunn's elixir opii, forty-five minutes before the operation, to diminish the force of the shock. She suffered much less from the injection than before, although its strength had been greatly increased, and the quantity, eight ounces instead of four. It was allowed to remain about five minutes,

and was then drawn off, as in the first operation. At half-past two, three hours after the injection, she had a chill, which lasted twenty minutes. She took two of the camphor pills and some warm drinks. 7 P. M. Face is flushed, skin hot and dry, pulse frequent and hard, with great thirst. She has passed a large quantity of urine, which continued free through the night.

13*th*. She has had a comfortable night, and continued quite well through the day. Took a pill at 11, 4, and 10.

14*th*. Slept well until half-past five in the morning, when she was seized with severe pain in the bowels. Saw her about 7 A. M. Severe pain in the abdomen, which was greatly distended, great difficulty in moving, although there was but little tenderness on pressure; whole body was covered with a profuse perspiration; pulse frequent and hard; hands looked as if partially par boiled, of a leaden hue, with the same appearance of collapse printed on the face. She had taken two of the camphor pills before my arrival, ordered free use of camphor julep, gave a pill every hour, and applied strong mustard over the abdomen, and bottles of hot water about the lower extremities. At half-past eleven she seemed much improved. Less tumefaction of the bowels, pulse less frequent, surface more dry, with an increased activity and tone in the capillary vessels; ordered one pill every two hours, and an enema. 3 P. M. Bowels well moved, has had a fine sleep and feels better. At nine in the evening found a gradual improvement, and directed a pill every four hours.

15*th*. 9 A. M. Has had a comfortable night. Feels better. Pulse more slow and full, distension of abdomen about the same as last evening, tongue still furred. Pill every four hours.

16*th*. Comfortable night. Bowels opened with congress water. Tongue has improved. Complains of a feeling of exhaustion. There is slight tenderness of abdomen on pressure, the fulness about the same. Pill every three or four hours as may be necessary to allay pain.

17*th*. Continues to improve. The bowels have a doughy feel, but there is no tenderness on pressure. They have been freely open from the calomel in pills, which were omitted, and small doses of opium given to control the bowels.

23*d*. Has continued to improve, eats and sleeps well, and has no further need of anodynes.

28*th*. Gaining constantly, but complains of debility. Gave protoiodide ferri, six grains each day.

June 10*th*. She returned to Albany. Since the last operation the secretion of the kidneys has been natural, and although there is some fulness of the bowels, I am inclined to think it the product of the inflammation which followed the injection.

Saw her again in October. She called herself well; could walk with ease three or four miles. Had gained in flesh; the size of the bowels was natural,

and the walls or outline of the collapsed sac could be easily traced through the abdominal parietes.

I have now another case under treatment, where no efforts have been made to exclude the air from entering the sac, and in which in two instances, half of the injected fluid could not be withdrawn; but no injurious effects were produced by its being retained in the system.

ART. X.—*Gunshot Wound of Chest and Abdomen.* By PHILIP S. WALES, M. D., Surgeon U. S. N.

JACOB MYERS, ordinary seaman, aged 23, admitted March 7th, 1863, with a gunshot wound of the chest and abdomen. He was pale, with an anxious expression of countenance; the least movement caused excruciating pain across the epigastrium and loins. Dark blood issued from the posterior wound, which was between the transverse processes of the last dorsal and first lumbar vertebræ, immediately below the neck of the twelfth rib. Suffers from thirst, and the injection of the smallest amount of fluid causes vomiting and violent retching, the patient flexing strongly both thighs against his abdomen. During these efforts blood, almost black, spirts out at the lower opening, and bright arterial blood at the upper one, which was exactly over the right rib, an inch or two from its junction with the costal cartilage. The pulse was feeble, and the patient very restless, tossing about incessantly. With compressors and adhesive straps the bleeding was stopped. Soon after his admission he passed bloody urine, which coagulated in the chamber. Stimulants were had recourse to in exceeding small quantities at a time, under which treatment the pulse rose a little. Towards noon he became more restless, and complained that the adhesive straps oppressed his breathing; they were removed, but without affording the relief the patient vainly hoped would follow; the stomach was distended and made a perceptible projection in upper region of the abdomen. The eyes became glassy, the pulse vanished from the wrists and ankles, the respiration unequal and frequent, the inspiration was taken with a gasp, and the expiration became twice as long as the former, and seemed to be effected in two expulsive acts; the first sound of the heart was normal and strong, the second could not be heard at all. Later the pulsation of the larger arteries could not be felt; the first sound of the heart ceased, yet the patient gasped, and once raised his head from the pillow; with every gasp the corners of the mouth were depressed, the central portion of the

lower lip rose up and met its fellow. The head was strongly drawn to the left shoulder, and with one forcible expiration the patient expired.

The pectoral and abdominal muscles became first affected with *post-mortem* rigidity, then the muscles of the limbs, from which it gradually spread to the balance of the muscles of the head and trunk.

Autopsy eighteen hours after death.—The musket ball comminuted the eighth rib on left side, one or two inches from its attachment to the costal cartilage, passed through the diaphragm on the left side, three inches from its lower margin, making an aperture about 1½ inches in diameter, wounding the upper part of the spleen, from which a copious hemorrhage had taken place into the pleural sac—the tissue of that organ being broken down into a black mass—then passed through the upper part of the left kidney, from which the blood had escaped to the extent of half a pint, but confined by the cellular capsule of that organ, the tissue of which was also broken down into a friable dark-coloured matter. The ball afterwards struck the upper and left extremity of the stomach, making a similar hole as in the diaphragm, and passed out of this viscus by an equally large opening about midway of its greater curve, and finally emerged below the diaphragm between the transverse processes of the twelfth dorsal and first lumbar, fracturing the neck of the left twelfth rib. About a quart of black blood was found in the left pleural cavity, and a mass of the omentum had been forced through the diaphragmatic opening and contracted adhesion to the external wound. A small quantity of dark coagula was found in the abdomen, and also around the opening in the stomach. The omentum was adherent on the left side of the abdomen, but not at the posterior orifice, being separated from it by coagula. The liver was healthy, and the gall-bladder distended with bile. The pericardium contained about two ounces of serum. The left lung was congested, and its lower margin hepatized, but not wounded; the posterior half of right lung congested also, the balance healthy. Some blood in the bladder, other organs healthy.

The diagnosis made in this case exactly accorded with the *post-mortem* lesions. The dark, or almost black blood, issuing from the wound on the posterior portion of left side, and its position, lead to the supposition of a wound of the spleen. The urine being bloody, pointed to the kidney as participating in the injury. Singular enough, notwithstanding the two large orifices in the stomach, not a drop of blood was vomited, though the patient expelled the contents of the stomach two or three times after his admission into the hospital, and from this fact it was surmised that the stomach might have escaped.

In this case the omentum did not project from the external wound, although adherent to the pleura costalis around it; yet I have witnessed such protrusion in several examples when the wound was much higher up, even at the sixth rib. A man presented this condition of things about three

months ago in this hospital. Surgeon Sharp informed me that he saw a case where the projecting omentum was taken for the lung tissue.

My patient survived the wound ten hours; and yet, in this short time, extensive adhesion had taken place between the serous layers of the peritoneum in the abdomen and this last membrane to the parietes of the chest.

All the cases of wounds of the spleen or kidney that have come under my notice have proved fatal in periods varying from ten hours to two days.

ART. XI.—*On the Use of Antimonii et Potassæ Tartras and Oleum Tiglii in establishing Adhesive Inflammation over Varicose Veins.* By S. P. TURNER, M. D., one of the Physicians to the Howard Hospital and Infirmary for Incurables.

HAVING upon several different occasions been forced to resort to the obliteration of varicose veins of the lower extremities by means of issues established over their course, inducing a deposition of fibrin within the areolar tissue surrounding them, and not meeting the desired satisfaction from the use of potassa fusa or Vienna paste, because of the great tendency to considerable inflammation of the skin about the issue, and the impossibility of limiting the action to the exact location desired, and the usual very tedious process of cicatrization, I have finally resorted to a substitute, which appears to have answered the desired indication in the instances where it has been employed, without these objectionable results: it is the antimonii et potassæ tartras mixed with oleum tiglii to form a paste of the desired consistence.

From the following cases its mode of application can be seen, with a report of the state in which the patient was left when last under observation.

CASE 1. Robt. Mc——, æt. 38, labourer. Some years since he received a severe blow upon the inner surface of the tibia, which was followed by enlargement of the neighbouring veins, gradually extending along the saphena three or four inches above the knee. Since that time he has suffered much each winter from ulceration at or near the internal malleolus, which usually disappeared after rest with the limb elevated, and the use of some stimulating application, until more recently the size of the veins had increased to such an extent as to render him almost unfit to follow his vocation, from the pain and sense of weight consequent upon the distension of the vessels at fault.

When he presented himself for treatment, there was a few inches above the internal malleolus a large irregular point of ulceration with elevated and indurated margins of a purplish colour from long-continued congestion. The internal saphena vein, beginning at the dorsum of the foot and extending to a point three inches above the internal condyle of the femur, was

largely dilated and tortuous, from elongation in some places appearing as if ready to burst from attenuation of its coverings. The pain was very severe, especially at night, and he seemed somewhat exhausted for want of proper rest.

June 5. A cathartic having been given the day previous, with directions that the bowels be kept regular, the patient was placed in bed with the affected limb well elevated and supported upon a pillow.

A strip of ordinary emplast. cantharidis, about twelve inches in length by one-half in breadth, was subdivided into some fifteen or twenty pieces; then over each projecting point of the vein was placed one of these small blisters, with the order that they be allowed to remain until vesication was established. Twelve hours afterwards it was found that out of the whole number applied, over one-half had produced the desired effect; the elevated cuticle was now removed by a pair of scissors, and to the denuded surface thus exposed was applied the preparation by means of a probe.

7*th*. The parts to which the application had been made were each raised up as an umbilicated pustule, such as is usually seen about the seventh day after vaccination. The patient complains of but little pain, and was directed to use warm water dressings.

8*th*. Passed a quiet night, with no uneasiness; the vesicles had ruptured and permitted the escape of the contained extravasated blood, showing at the bottom of the ulcer a slough which had begun to separate from the adjacent parts; water dressings continued.

9*th*. The sloughs occupying the centre of each ulcer had entirely separated and been removed, exposing a well-defined depression with perpendicular edges; indeed, looking as if they had been cut out by means of a punch. Granulations were already springing up from the bottom and sides of each ulcer, so that in a few days cicatrization was complete.

Sept. 18. The site of each ulcer is distinctly marked by a firm cicatrix, whilst the size of the vein beneath has diminished in the same proportion. The original ulceration over the malleolus has completely closed, and has showed no tendency since to return. He was now advised to use a laced stocking, which could be worn with comfort, when previously it had given considerable pain.

Since this time he has been seen once, and has no appearance as if a return of the varicose state was to be apprehended.

CASE 2. Jane R., æt. 43. Has not been able to leave the house for some months past from a varicose condition of the internal saphena vein and its ramifications, which she referred to repeated pregnancies and prolonged standing upon the feet. The circumference of the left limb when the erect posture is assumed, measures nearly one-third more than that of the sound one; while over the inner tibial region exists a large irregular ulcer, discharging a most fetid pus. She was placed in bed with the limb well elevated, with directions that the bowels be kept regular.

Sept. 20. To a number of places where the vein seems very prominent an ethereal solution of cantharides was touched by means of a camel-hair pencil. Some hours afterwards the raised cuticle was removed, and to the centre of each denuded surface the antimonii et potass. tart. cum olei tiglii was applied.

21*st*. The parts to which the application had been made presented the peculiar umbilicated vesicular appearance of the former case, which, after

discharging their contents, exposed the slough, which was assisted in becoming detached by water dressings.

23*d*. The sloughs have all become loosened and removed, leaving a well defined ulcer of the same size, and of from one-fourth to five-eighths of an inch in depth, surrounded by a small circle of inflammation. Granulation was now allowed to proceed, and by the 28th cicatrization was complete.

Oct. 20. The primary ulcer over the tibia has yielded to the occasional stimulating action of argenti nitras, while the size of the vein has considerably diminished, and with it that of the limb. She is able to wear an elastic stocking, and feels but little of the pain and uneasiness formerly experienced when the limb was permitted to occupy a dependent position.

CASE 3. Mary R., domestic, æt. 50. Six years ago was much troubled by constipation, which she considers the origin of the present state, which is an enlarged and tortuous state of the veins of the left limb, beginning at the foot and extending to the popliteal space, where the form of a tumour is attained nearly as large as an orange. The patient complains of great pain in the limb with want of power, and experiences considerable difficulty in walking. Several times she has been much annoyed from the appearance of ulceration over the inner surface of the tibia, which gave her considerable trouble before subdued.

Over the varicose vessels several eschars were established by the application of the antimony which produced the requisite amount of inflammatory effusion within the areolar tissue, finally ending in the obliteration of the vessel. The size of the limb has slowly diminished, with a prospect of great alleviation if not a perfect cure.

The patient is usually kept in the recumbent posture, that the distension of the vessel may be prevented as much as possible by the accumulation of blood in it, thus offering an obstacle to the compressing agency of the plastic lymph, which it is our object to attain as much as possible. The vesication by the cantharides expedites the treatment by removing a layer of epidermis, which is usually so thickened by constant irritation that it offers us slight impediment to the action of the antimonii et potassæ tart. made into a thick paste with oleum tiglii and applied by means of a small piece of wood, such as the free end of a common match. This is followed by a vesicle, underneath which is found the eschar.

The proposed plan has not only assisted the repair of the lesion, if the sore is superficial and not very chronic, but in many instances found not only to palliate, but as effective as obliteration of the vein by the use of the twisted suture, or the substitute of potassa fusa or Vienna paste, whilst it possesses the advantage of being available in almost every instance of varicose enlargement of the superficial veins of the lower extremities.

ART. XII.—*Luxation of the Head of the Fibula.* By Jos. G. RICHARDSON, M. D., Resident Physician to the Pennsylvania Hospital.

THE following example of this accident is interesting from its rarity, there being but three cases of it on record; one by Sir A. Cooper, another by Malgaigne, and a third by Sanson:—

John Dixon, a schoolboy, æt. 9, was admitted into the Pennsylvania Hospital, on the evening of December 26, with an injury to the knee. In the absence of my colleagues, being called to the case, I found the child extended upon his back, with the left leg in a semi-flexed posture, and the foot slightly everted, apparently suffering considerable pain, and unable to completely flex or extend the limb. When questioned in regard to the accident, he referred the uneasiness to the outside of his knee, and stated that it was the result of a fall of about five feet from the top of a fence, and that he had struck that part of his leg against something in his descent. On examination a protuberance was observed on the outer back part of the leg about three-fourths of an inch behind the head of the fibula. The tendon of the biceps flexor, rendered prominent by spasmodic contractions of that muscle occurring at short intervals, was distinctly felt attached to this prominence. After a careful scrutiny of the joint and surrounding portions, in which no other lesion was discoverable, the diagnosis of luxation of the head of the fibula backwards was formed, and an attempt made to reduce it by insinuating the tips of the fingers beneath the fibula, so as to make some traction outwardly, at the same time the head of the bone was drawn forwards to the articulating surface on the tibia. In this way the displacement was overcome with but little difficulty, and the boy enabled to resume the natural movements of the limb. To guard against a recurrence of the luxation from muscular spasm or otherwise, a compress was placed behind the fibula, a firm bandage applied to the leg, and the patient directed to remain in bed with the limb partly flexed until further orders. No tendency to redislocation being observed, however, after a few days a cautious resumption of the usual functions of the limb was permitted.

ART. XIII.—*Formula for a Solution of Bromine.* Proposed by J. LAWRENCE SMITH, M. D., Professor of Chemistry in the Medical Department of the University of Louisville.

THE frequent demand for bromine from the Louisville Chemical Works, which are under my direction, induced me to inquire for what purpose it was

used, and learned that it was being employed as a therapeutic agent, especially in the form of vapour mixed with air as a purifier of the atmosphere of hospitals, where erysipelas, gangrene, smallpox, &c., existed, and also internally in certain affections of the throat. Knowing full well the inconvenience of the use of the substance in the form called for, I at once undertook to compound a solution which would meet the ends required, and be more convenient for any therapeutical use to which uncombined bromine might be applied. From the slight solubility of bromine, any attempts to dissolve it in water would give too dilute and bulky a solution, the natural suggestion, therefore, was to use but little water and facilitate its solubility by adding bromide of potassium; at first the following proportions were used: 1 troy ounce of bromine, 120 grains bromide of potassium, and 1 fluidounce of distilled water; the formula left a small quantity of bromine undissolved, and the solution was too concentrated. After varying the proportions in different ways I have settled on the following as the most convenient formula:—

℞.—Bromine . . . . . 1 troy ounce.
Bromide of potassium 160 grains.
Distilled water . . q. s. to make four fluidounces of the whole mixture.

Dissolve the bromide of potassium in about two fluidounces of water in an eight ounce bottle, then add the bromine, agitate gently until the solution is complete, then add water enough to bring the whole to four fluidounces.

This mixture forms a very dark red solution, evolving strong fumes of bromine, and readily soluble in any additional quantity of water.

I have given this formula as one that will, doubtless, recommend itself to those of the medical profession engaged in using bromine, and is already being used by the medical profession of this place.

REVIEWS.

ART. XIV.—*The Renewal of Life; Clinical Lectures Illustrative of the Restorative System of Medicine, given at the St. Mary's Hospital.* By THOMAS K. CHAMBERS, M. D., Fellow of the College of Physicians; Physician to St. Mary's Hospital; Lecturer on the Practice of Medicine, and Clinical Lecturer at St. Mary's Medical School. London: John Churchill, New Burlington Street, 1862. 8vo. pp. 430.

OF the character of this book the title hardly affords an inkling, but its pertinency is apparent after the author's doctrine of the general nature of disease is apprehended. He begins by enumerating five principles which, at the present time, influence more or less the therapeutical conduct of those who undertake the management of cases of disease. One of them is *allopathy*, a name which physicians properly repudiate as designative of legitimate medicine, but which, it must be admitted, expresses a line of practice pursued to some extent. The second is *homœopathy*, which the author disposes of satisfactorily in a few words. The third is *evacuation*, the principle involved in the measures designed to eliminate a *materies morbi*. The fourth is *counter-irritation*, a principle founded on the idea of substituting for a disease which threatens to be dangerous or persisting, an artificial disease which is temporary and controllable. The fifth is *stimulation*, which the author regards as a step forward in the right direction, but, as a therapeutical principle, resting on a partial trial only. He regards the root of all these principles as unsound; all of them being based on the assumption that disease is an entity, a motive cause, a *positive* existence. As opposed to this notion of disease, the author sets forth his own view in the concluding paragraph of the first lecture:—

"DISEASE is in all cases not a *positive existence*, but a *negation;* not a new *excess* of action, but a DEFICIENCY; not a *manifestation of life*, but PARTIAL DEATH: and, therefore, the BUSINESS OF THE PHYSICIAN is, directly or indirectly, not *to take away* material, but to ADD; not to *diminish function*, but TO GIVE IT PLAY; not to *weaken life*, but to RENEW LIFE. These are the principles of RESTORATIVE MEDICINE."[1]

In the second lecture the author enters into a further exposition of his philosophy of disease. Having instituted a comparison between the decay of dead and of living bodies, he considers life as the principle which presides over the changes of nutrition. "LIFE IS RENEWAL," "the *most active* renewal of the body possible, the highest possible development of life in every part, is HEALTH." "The *complete* cessation of renewal is DEATH." "The *partial* cessation, or arrest, is DISEASE."

In illustration of this definition of disease, the degeneration of the voluntary muscular fibre after long disuse, is compared with the change which occurs during maceration after death, according to Quain's observations. So in other cases of degeneration there is a "diminished life," or a "partial

[1] The *italics and capitals* here and subsequently, are the author's.

death." Cancer, for example, denotes lessened vitality, notwithstanding the amount of morbid growth, because it never puts on the *form* of the part it is planted in, nor performs its duties." "Its very tendency to die and to ulcerate is one of the chief dangers in which it puts your patient." He cites the instance of the local processes in a common cold, because in such an instance the first impression is that vital actions are increased, not diminished. But adopting the hypothesis of Virchow, that the "exudation or mucous globules," or the "pus globules," found on an inflamed mucous surface, are imperfectly developed epithelium cells, this shows deficient vitality. "The business of mucous membranes is to be covered with epithelium, not to throw off mucus; and when they are doing the latter, they are so far forth in a state of diminished life." And the same holds true of all inflammations; all are characterized by partial death of the part affected. In like manner blood changes denote either "a distinctive relapse into a less organic life, or an arrest of development." "The poison of fever, for example, destroys and renders useless as nutriment some constituents of the blood." Anæmia is an instance of an arrest of development of the red corpuscles.

Carrying the doctrine into the materia medica, therapeutical measures, or, as the author says, the "tools with which the restoratist physician has to work," may be divided into CONSTRUCTIVES, ARRESTERS, and DESTRUCTIVES. The restoratist physician deals especially with constructives:—

"Or, by the judicious use of destructives and arresters of metamorphosis, we in some cases make room for, and in others allow time for the normal growth of the tissues, and thus are acting up to our principles in making our prime object the renewal of life."

This sketch of the first two lectures will convey a general idea, if not a full appreciation of the sense which the author attaches to the terms, "renewal of life," and "restorative medicine." And this is all that we shall undertake to do. We will not discuss the merits of the doctrine which the author considers to be the foundation of pathology and therapeutics. It is striking, and we do not hesitate to say that, in our opinion, it contains much of truth. Whether it be true in the length and breadth with which the author presents it for our acceptance, is another question. We are by no means prepared to deny that in some forms of disease there is an exaltation of the vital functions of the affected parts. For example, it is difficult to show that muscular hypertrophy does not involve augmented activity of the nutritive processes and increased functional power, and hence, that hypertrophy is to be regarded as a partial death, but, considered in its practical bearings, the doctrine will be likely, in the majority of cases, to lead to safe and judicious practice. The doctrine seems to us to have grown out of a common sense view of clinical medicine; we mean by this remark, that the author appears to have set about to devise a theory consistent with the practical notions which actuate, at the present moment, the most enlightened and judicious physicians. It is interesting to remark the different points of view by which similar practical conclusions are reached. For us the renewal of life is conservative medicine, and the restoratist is the conservative physician. Commending the theoretical part of the work to the reflections of the reader, we shall devote the remainder of this review to some of the practical points presented in the remaining twenty-seven lectures.

Continued Low Fever is the subject of two lectures. The author is inclined to think that the poison of continued fever enters the system

through the digestive canal; and he believes that, at an early stage, the fever may be arrested by an emetic. This belief is for us especially noteworthy, because it accords with the opinion of one who, as an able, candid, and conscientious clinical observer, is second to none other; we refer to James Jackson, of Boston. Dr. Jackson has long taught that continued fever may be sometimes broken up by a prompt emetic. We regret that we have nothing to say on this point from our own experience.

Regarding the blood as in a state of super-alkalinity from the presence of an excess of ammonia, according to the remarks of Dr. Richardson, the introduction of an acid becomes an important restorative measure. Dr. Chambers gives the hydrocholoric acid in doses of twenty minims every two hours, with syrup. Of the efficacy of this measure he speaks in very strong terms. He declares that during a period of eight years he has not lost a case of low fever in which this remedy has been taken for thirty-six hours.

The restorative method embraces nutriment containing a large amount of nitrogenized material, and alcohol when there is prostration with delirium of a low character. The latter is not to be given indiscriminately. We are glad to see that the author takes ground against its excessive use; but it seems to us that he hardly accords to it sufficient importance in the treatment. A number of cases are reported as illustrative of the author's practice in low continued fever.

Anæmia and bloodletting are discussed in one lecture. With respect to the former there is nothing to be especially noted; but from the author's views of bloodletting we must express dissent. We quote his language:—

"The question (viz., why we bleed) seems to me rather one of hydrostatics than of vital statics. The primary and most important effect is mechanical. The bloodvessels of some parts of the body have lost their tone and become dilated; and the more pressure of fluid there is inside them, the more and more will their vital elasticity be impeded, and the more dilated they must become. Taking blood in this case is like emptying the urinary bladder when paralyzed by its retained contents; and the more locally the remedy can be applied, the closer it resembles that approved surgical operation. Relieved of the burthen which oppresses their life, the vessels are enabled to resume their function of regulating the stream of the circulation. So that from this point of view, and so far, the treatment is directly restorative and reconstructive. It is a remedy for local congestion."

Dr. Chambers evidently bleeds more than most practitioners of the present day, and it is curious to see how he essays to reconcile his practice with his doctrine of restoration and life renewal. He shuts out of view the heart's action, the force of attraction in the tissues, and the fact that the blood contains the principles of repair. We are among those who think that the evils of bloodletting are apt to be exaggerated, and that its repudiation in all cases is as much an error of extremes as its indiscriminate use. But we must say that the mechanical view set forth in the foregoing extract seems to us untenable; and that its adoption, as the basis of the employment of bloodletting, would be productive of not a little destructive practice.

Rheumatic Fever is the subject of a lecture. Dr. Chambers attaches great importance to quietude and protection of the surface against cold. We quote his practice with reference to these objects:—

"The patients are bedded in a peculiar fashion. All linen is strictly forbidden to touch the skin. A slight calico shirt or shift may be allowed; but if

they possess underclothing only of the prohibited sort, they are better naked. Sheets are removed, and the body carefully wrapped in blankets, which are so arranged as to shut off all accidental draughts from the head. The newest and fluffiest blankets that can be got are used. The bed-clothes being put so are kept so, and students are warned that when they listen to the sounds of the heart they must not throw open the blankets, but insert their stethoscope (first warmed) between the folds."

He adds:—

"Since I have instructed my nurses to adopt it (*i. e.* this plan), in every instance, during the last eight or nine years, I have had pericarditis come on only in one patient previously sound, and that was in a girl who was taking mercury and opium, and, I suspect, had exposed her chest a good deal to the air."

We cannot avoid wishing he had given the number of cases under his treatment during the period stated, for pericarditis is by no means a frequent complication of rheumatism. In addition to the practice just described he prescribes the alkaline treatment, and gives opium as a palliative. The iodide of potassium he thinks useful in certain cases. If pericarditis become developed, local depletion by leeches is strongly enforced. The infrequency of this complication, however, in the cases under his observation must have afforded him but a limited opportunity to test the efficiency of this treatment. We must confess skepticism as to the power of bloodletting to control this, more than other serous inflammations. He advises the constant application of a poultice to the præcordia during the continuance of the pericarditis. Mercury, with a view to prevent the occurrence of pericarditis, or as a remedy, he does not employ, having observed a fatal case in which this complication occurred while the patient was under mercurial influence. Although a single case affords but little evidence either for or against a remedy, we are not disposed to take any exception to the repugnance with which he regards the mercurial treatment of pericarditis.

The next subject considered is *Pleurisy*. Leeches and poultices constitute the author's treatment. In his advocacy of the former he reproduces, as he does repeatedly in other connections, his explanation of the local detraction of blood as a "renewer of life." He says:—

"Doubtless the taking away the vital fluid is taking away part of the body, and so is directly a destructive agent. But, then, blood thus lost from an inflamed part is not all loss; it is black 'melanose,' partially dead and unfitted for the purposes of life, and only a portion of it can be called living. Then again, granting that loss of blood is a direct loss to a living body, still the indirect gain is a full compensation to cases when it is rightly applied. The blood-vessels resume their elastic force, the blood-stream is restored, and loss of substance is a regaining of function. So that a destructive becomes in the end a constructive remedy."

But does it follow that, because leeches are applied to the chest, the blood removed comes from the inflamed place? Is it only the melanoid or partially dead blood which is removed? Does the blood taken from the integument of the chest in pleurisy show evidences, derived from microscopical or chemical examination, of partial death, or any essential change?

The explanation given of the *modus operandi* of poultices is, to say the least, amusing:—

"In the action of poultices there is no even seeming paradox to stumble at. Continuous steady warmth is the most direct agent we possess of vital development. It not merely encourages vital growth, but makes that growth take a

higher form of life. Mr. Higginbottom found that different detachments of tadpoles, kept in the dark and treated with different degrees of temperature, threw off their tails and branchiæ, and developed lungs and became frogs with a quickness exactly proportioned to the warmth they were subjected to. Warmth, especially when kept steady, and even by moisture joined with it, has the same effect on the failing life of tissues; it raises and restores it to its normal force of development. It renews the injured membrane which had been lowered to that condition we call congestion and inflammation into the higher life of warm-blooded circulation. As it developed the tadpole into the frog, so it develops the half-killed diseased part into full life."

Dr. Higginbottom, we fancy, hardly dreamed of this practical application of the results of his experiments on tadpoles!

Here, as in other instances, Dr. Chambers affirms with much positiveness the efficacy of his mode of practice. "Such means," he says (*i. e.* leeches and poultices), "will not fail to cut short an attack of pure pleurisy." We must, however, dissent *in toto* from his implied opinion that acute pleurisy tends to the destruction of life. He gives a case in which it proved rapidly fatal; but in that case there existed pyæmia. Fatal cases of pure acute pleurisy are exceptional. Dissenting from his opinion of the danger of pleurisy, we must also dissent from him when he says, "Do not hesitate and trust patients to Nature in any disease; but least of all in acute pleurisy." On the contrary, we could cite abundant facts to show that cases of acute pleurisy may generally be left to Nature with entire safety.

Idiopathic hydrothorax Dr. Chambers considers as meaning "a collection of serum in the pleural sac, injurious to health from its quantity, and arising from an abnormal state of the pleura itself." By this definition he excludes dropsy of the pleural sac, and applies the term hydrothorax to an effusion which in most, if not all cases, proceeds from pleuritis. We are unable to see the propriety of this use of the term. Subacute or chronic pleurisy with effusion, as it seems to us, covers the ground sufficiently. In the treatment of these cases he employs blisters, poultices, and diuretics. Recollecting his antipathy to mercury in pericarditis, we are surprised at his very strong recommendation of this remedy in pleuritic effusion. We quote his remarks:—

"Mercury distances all the contents of our Pharmacopœia in the power of hastening destructive metamorphosis. Under its influence all the excretions are increased at the expense of the tissues. Now it is quite true that, by such a process, nothing is directly gained in cases like that before us; there is no poison to evacuate, and the debility which follows is so much ground lost. Harm, therefore, certainly is done by it; but with the harm there is joined a good which I think is worth the loss. No drug so constantly and steadily promotes absorption as mercury, and in no case can you trace its effects so easily as in hydrothorax."

We cannot but think that the loss from mercurialization in these cases is more appreciable than the gain, and we believe that Dr. Chambers will think so if he will observe a series of cases treated without having recourse to mercury. He reports a case in which paracentesis was employed, and considers this to be an easy and safe operation.

Acute Laryngitis is the next subject considered. The therapeutical injunctions are thus summed up:—

"*Warm* the surface of the body; saturate with hot *steam* the air inspired; put on *leeches* and *hot fomentation* to the throat. *Food* must be sedulously administered, if not by mouth by rectum. If benefit do not quickly follow, perform tracheotomy, or get it performed."

We would commend especially the last injunction; many lost lives might have been saved by a prompt resort to this operation.

The author objects to the use of antimony and mercury in this disease, and the grounds of his objection are precisely those which we have been led to consider as warranting their use. He thinks that these remedies depress rapidly the general vitality, and his argument against their applicability in acute laryngitis is contained in the following quotation:—

"This depression is the more decided from the limited extent of the inflamed spot, and the limited inflammatory reaction on the system; for the poisonous actions of antimony and mercury are the stronger in inverse proportion to the amount of tissue inflamed. Give them to a healthy man—to a man with a cold in the head or an inflamed corn—and they pull him down most wonderfully; but give them to a patient with double pneumonia or peritonitis, and he hardly feels their effect. In laryngitis, therefore, *more* than in most inflammations, these drugs are likely to have a deleterious action, and *less* than in most inflammations a beneficial action."

In direct contrast with this reasoning we should argue in behalf of the appropriateness of these remedies in acute laryngitis, as follows: Since the inflammation in acute laryngitis involves no danger *per se*, but only because, from its situation, it occasions obstruction to respiration, it is not so much an object to spare the powers of life as in other affections like pneumonia or peritonitis, which destroy life by asthenia. We cannot appreciate the effects of the remedies in question in the latter diseases so well as when a patient has only a common cold or an inflamed corn, because their effects are intermixed with the phenomena of the disease, but in proportion as the disease tends to impair the general vitality, the latter has less force of resistance to these remedies. We would, therefore, reverse the closing statement in the question and say, in laryngitis *less* than in most inflammations, these drugs are likely to have a deleterious action, and *more* than in most inflammations, a beneficial action. We submit the *alterem partem* to the verdict of the reader.

Pneumonia is the subject of the next lecture. Dr. Chambers is an advocate for bleeding in this disease. We give the theory of its usefulness.

"The beneficial action of bloodletting in pneumonia is mechanical. The pathology of the demand for its use is as follows: by the temporary death of a portion of the lungs the blood cannot be quickly enough passed onward through their tissue; it can run freely as far as the right side of the heart, but there it is stopped; the throng pressing onward from behind makes matters worse, and thus the balance between the venous and arterial heart is destroyed. * * * Take away some of the blood from the veins and the balance is restored; the pulse becomes 'freer,' as the technical phrase is; that is to say, the heart being relieved of the undue crowd in the right side, is not arrested in its contraction, but is able to close upon its contents and supply them steadily to the arteries."

This explanation is not peculiar to Dr. C. We believe it to be rational, and a sufficient ground for bleeding *when other circumstances do not contraindicate it.* We will add a consideration, which we suspect to be of importance, with reference to bleeding in pneumonia. The accumulation of blood in the right cavities of the heart favours the occurrence of heart-clot, which we are well convinced is an accident occurring in this disease oftener than is generally supposed. A sudden and unexpectedly fatal termination is not unfrequently attributable to this accident.

Aside from the question of bloodletting, the author advises nutriment, wine, and a poultice to the chest. He abstains from purgatives, blisters, antimony, and mercury, to which we cordially say, amen.

The lecture on *pulmonary consumption* is, in our estimation, one of the most valuable in the book. The following sentence, which the author gives in italics, indicates the line of conduct which the practitioner should pursue in the management of this disease. *"I cannot too strongly impress upon you that not so much the tubercle as the tendency to form tubercle, nor the morbid matter, but the diathesis, is that which should occupy your thoughts."* In pursuing this line of conduct we agree with the author most heartily in avoiding all so-called "cough medicines," such as antimony, ipecacuanha, and squill; also, mercury and purgatives. We agree with him when he says that the object is "to get the greatest possible amount of albuminous food fully digested and applied to the renewal of the body." Cod-liver oil he deems often useful as a form of nutriment. We believe that he underestimates the value of alcohol as a remedy is this disease.

The lecture on *Disease of the Heart* is excellent. He cites a series of cases in which organic murmurs had existed for many years without inconvenience from valvular lesions. We have endeavoured to impress the error and evils of attaching undue significance to heart-murmurs, and to enforce the importance, in cases of chronic valvular lesions, of keeping the heart and the system at large invigorated as much as possible. We quote with satisfaction the following enumeration of the main points in the management of diseased hearts:—

"1. The importance of valvular lesions consists in their liability to cause enlargement of the organ.
"2. In auscultation we should strive more to find out the state of the heart-walls than of the valves.[1]
"3. The danger of enlargement is greatest where the muscular fibre is weakest.
"4. The muscular fibre is weakest where the blood is most anæmic.
"5. The principal object of treatment is to avoid anæmia."

Passing by a lecture on thoracic aneurism, the two next lectures are devoted to *Albuminuria* and *Diabetes*. The practical views with respect to the former of these two diseases accord with those now generally held by intelligent practitioners, nor do we find anything especially noteworthy in the lecture on the latter disease. We may dismiss, in the same manner, the subjects treated of in the two succeeding lectures, viz., *Hysteria* and *Sciatica*.

The last nine lectures are devoted to the *digestive organs*. *The Importance of these Organs in Therapeutics* is the subject of a lecture. *Indigestion* occupies three lectures, and *Eructation and Vomiting* an additional lecture. The *Dietetics of Deranged Digestion* are considered in another lecture. *Pepsine* and *Alcohol* each occupy a lecture; and finally, *Diarrhœa* and *Constipation* have each a distinct lecture. Our limits forbid a reviewal of these nine lectures, and the more because they are even richer than the preceding lectures in practical points of interest and importance. Dr. Chambers, as we need not inform our readers, has made digestion and its derangements a special study, and the last nine lectures of this book may be regarded as an appendix to his former valuable treatise on the same subject.

As a writer, Dr. Chambers is remarkable for presenting his views with great boldness, precision, and conciseness. He gives many valuable facts,

[1] The physical signs enable us to find out both.—REVIEWER.

and much that is suggestive of important trains of reflection within a small compass. His writings excite and sustain the reader's attention. In his little work on the *Renewal of Life* he treats of the various subjects in a fragmentary style, confining himself to the salient points of inquiry; but this feature of the work, arising from the fact of its being made up of clinical lectures, will not render it less attractive to the medical reader. The work is, in many respects, open to criticism. The soundness of the author's reasoning may not unfrequently be called in question, and there seem to us to be palpable inconsistencies between the doctrine of "restorative medicine" and the author's practice. But it is a work well suited to awaken thought and inquiry in a right direction, and we are not surprised to hear that already it has passed to a second English edition. So soon as our domestic troubles permit the medical publishers of this country to resume their wonted activity, we shall expect to see the work in an American dress. A. F.

ART. XV.—*Medico-Chirurgical Transactions.* Published by the Royal Medical and Chirurgical Society of London. Vol. XLV. (2d Series, Vol. the twenty-seventh.) London, 1862. 8vo. pp. 497.

THIS volume contains twenty-four original communications. Abstracts of fourteen of these having been already given in the quarterly summaries in numbers of this Journal for last year, we shall now notice only the other papers in the volume.

I. *Observations in the discovery of the original obstetric instruments of the Chamberlens.* By ROBERT LEE, M. D.—This paper, as detailing several circumstances connected with the history of the Chamberlens, and with the introduction of the midwifery forceps in the practice of obstetrics, will be read with interest, particularly by those who study and practice that department of medical science. Dr. Lee does not appear to question at all that the Chamberlens were the first to use forceps.

II. *On certain grave evils attending Tenotomy, and on a new method of curing Deformities of the Foot.* By RICHARD BARWELL, F. R. C. S. E. —An abstract of this paper is published in the number of this Journal for January, 1862. It is one of importance, as calling attention forcibly to the too much neglected fact that, in certain cases of deformity of the foot, division of the tendons only aggravates the patient's condition, and also as indicating a most promising mode of treatment; instead of destroying by an incision the action of the muscles by which the foot is turned, Mr. Barwell, by an ingenious apparatus, assists the action of those that are not sufficiently powerful to keep it straight. In this apparatus, which is not very clearly described in the volume before us, and still less clearly in the abstract referred to, an inextensible piece of stout adhesive plaster is fastened to the foot all over the course of the *tendon* of the feeble muscle, and an elastic cord, following the course of the *muscle*, is fastened to the end of the plaster below and to a hook above. This hook, in the apparatus described by Mr. Barwell, is held in position by being attached to the upper extremity of a piece of tinned iron bound to the leg by adhesive strips. If this hook, to which the upper extremity of the elastic band is attached,

were held in place by some contrivance not interfering with the free play of the muscles of the leg, the apparatus, it seems to us, would be much improved. Mr. Barwell's paper is accompanied by a plate containing five figures, illustrating the application of the apparatus in various malpositions of the foot.

III. *Congenital Malformation of the Eyes in three children of one family.* By THOMAS NUNNELEY, F. R. C. S. E.—The malformation in the three cases mentioned in this paper consisted, in one, in total absence of the iris in both eyes, and in the others in the irides being dull, thin, and tremulous. Though the eyes in all the cases were irritable and painfully affected by very strong light, yet vision was pretty good. In the work of Desmarres on diseases of the eye, the frequency with which irideremia is seen in several members of a family is spoken of, and a most curious example is given, to which we would refer those particularly interested in this affection, and also those interested in the interesting study of the inheritance of deformities. (Desmarres, *Mal. des Yeux.* Tome deuxième, page 457. Paris, 1855.)

IV. *Observations on the division of the Gustatory Nerve, and on ligature of the Lingual Artery, in the treatment of Cancer of the Tongue.* By CHARLES H. MOORE, F. R. C. S. E.—An abstract of this paper is published in the number of this Journal for January, 1862. The operations recommended by Mr. Moore, though not curative, yet have afforded such decided relief, that surgeons should be encouraged to practise them, as making life less insupportable in one of the most distressing affections to which the human body is liable.

A plate is attached to this communication, representing a vertical median section of the bones of the face, for the purpose of marking the place where the gustatory nerve is recommended to be divided.

V. *A case of Osteo-malacia.* By ROBERT BARNES, M. D. Communicated by Mr. T. B. Curling, F. R. S.—Dr. Barnes has submitted the very interesting case of osteo-malacia, here recorded, to the Royal Medical and Chirurgical Society for the reason that in the Transactions of this Society is to be found a great part of all the original information that has been contributed by English authors concerning that rare and formidable disease.[1]

The patient was a woman, forty years of age, married, but never pregnant, who had enjoyed good health, and who belonged to a healthy family. The clavicles, the scapulæ, and the bones of the head and the extremities were not affected by the disease, and those bones of the trunk suffered most the bulky part of which is largely formed of cancellous tissue. Under the use of cod-liver oil, which has been recommended by Breslaw and others as beneficial in cases of softening of the bones, the progress of the disease was arrested, and the patient restored to health.

The most interesting portion of the paper is the account of the analysis of the urine made at various times. The characters of this secretion may be briefly summed up as follows: During the active stage of the disease it contained a large excess of urea, of alkaline and earthy phosphates, and of extractive. It also almost constantly contained small quantities of sugar. It is worthy of note that in a case related by Beylard, who has written by far the most complete account of osteo-malacia that has yet been published, a number of calculi were removed from the kidneys after death. These calculi were found, on chemical analysis, "to be, so to speak,

[1] See vols. vii., viii., xv., xvii., and xx. for papers on the subject.

exempt from uric acid, and from ammoniaco-magnesian phosphates, and to be formed entirely of phosphate of lime and of organic matter."[1]

VI. *On some affections of the Cæcal portions of the Intestines.* With illustrative cases. By FREDERICK GEORGE REED, M. D.—A full abstract of this important paper is published in the number of this Journal for April, 1862. In an appendix attached to the paper in the volume before us, the reasons are given why Sir Benjamin Brodie recommends patients with cæcal fistula to remain recumbent on the face night and day for several months, and also for the administration of one drachm doses of powdered cubebs. In all those cases of rupture of the cæcum followed by abscess, which Sir Benjamin Brodie has had the opportunity of examining after death, on dissection, the opening has been uniformly at the posterior part of the intestine; consequently, the object of the patient maintaining the prone position on the face becomes obvious. The use of powdered cubebs pepper was suggested from it having been found to be often very beneficial in cases of internal piles, and especially useful when the patient suffers from hemorrhage in consequence. The powdered cubebs pepper seems to act by mixing with the feces and becoming a topical application to the mucous membrane of the bowel. In the case related by Dr. Reed the grains of pepper were daily recognizable in the fecal matter passing through the fistulous opening. The medicine appeared to be grateful to the stomach, and to aid the action of the bowels.

VII. and VIII. *On the Poisonous Effects of Coal-Gas upon the Animal System;* and *Additional Experiments on the Poisonous Effects of Coal-Gas upon the Animal System.* By C. J. B. ADDIS, M. D.—Abstracts of these papers upon the effects of undiluted coal-gas, and the effects of the same gas diluted with atmospheric air in different proportions, together with the remarks made by Mr. Marcet and others at the time of their reading before the Society, are published in the numbers of this Journal for April and for July, 1862.

IX. *On the Temperature, Urea, Chloride of Sodium, and Urinary Water in Scarlet Fever; and on a Cycle in Disease and Health.* By SIDNEY RINGER, M. B. Communicated by Dr. Garrod, F. R. S.—An abstract of the experiments recorded in this very elaborate paper, which is intended to be a sequel of a former paper on "Ague," published by the author in Volume XLII. of the *Transactions*, of which a notice was given in this Journal in the number for April, 1860, is published in the number of this Journal for April, 1862.

This communication is accompanied by nine diagrams, or charts, by which the study of the changes in temperature from day to day is greatly facilitated.

In connection with this subject, it may be thought worthy of mention that we have recently examined, on two occasions, the urine passed by a patient during the long-continued cold stages of pernicious intermittent fever. In both instances it was found to have a specific gravity of 1030, and the excess was determined to be owing to the large quantity of urate of soda it contained.

X. *On Pulse-Breath.* By C. RADCLIFFE HALL, M. D. Communicated by W. Jenner, M. D.—By the term "pulse-breath," Dr. Hall wishes to

[1] Beylard, "Du rachitis, de la fragilité des os, de l'osteomalacie." Paris, 1852. It is quite remarkable that Dr. Barnes manifests no acquaintance with this really splendid monograph.

signify an audible pulsation communicated to the breath, as it issues from the mouth, by each beat of the heart. It must not be mistaken for "pulse-respiration," which is often used to designate the ratio that exists between the frequency of the pulse and the number of the respirations in a given time. It is simply an audible pulsation of the breath as it issues from the patient while he holds his mouth open and breathes as gently and with as little of the ordinary noises of respiration as possible. The sound is that of a gentle gushing of the breath synchronous with each pulsation of the heart, and such as any one may imitate voluntarily, so far as the character of the sound is concerned.

Dr. Hall has noticed the phenomenon he terms "pulse-breath" in three cases. In two there was a large excavation in the lungs, and as the cavity was more empty so the sound was more marked. After an attack of vomiting, by which the cavity was well cleared of its liquid contents, Dr. Hall was able to count the pulse of the patient by listening to his breath at a distance of fifteen feet. The mechanism of the production of pulse-breath in these cases seems to be very evident. A large cavity, old enough to possess walls of sufficient density, which is not immediately separated from the heart by permeable or crepitating lung, or any other intermediate soft texture which could act the part of a damper, and which is tolerably dry for the moment by being emptied of its customary contents, vibrates in accordance with each beat of the heart, and at each vibration throws the air in the cavity, trachea, larynx, and mouth, into a sonorous pulsation. When the cavity is more or less filled with liquid, it no longer vibrates; and, as this is the habitual state of a cavity which has not collapsed, the phenomenon of pulse-breath is not ordinarily present even in such cases as can manifest it under fitting conditions.

The next example of "pulse-breath" related by Dr. Hall is less easy of explanation. The case was one of cardiac disease with enlarged liver, pulmonic congestion, relieving itself occasionally by hæmoptysis, leaky kidneys, and general anasarca of the lower extremities. In this patient a soft, gentle "pulse-breath" was *never* absent when the mouth was held open. It was audible when the patient was asleep, and when awake it was rendered considerably louder when the action of the heart was unusually excited. To explain the production of "pulse-breath" in this case it may be supposed that the impulse of the distended auricles and the pulsation in the pulmonic vessels were communicated through the condensed lung to the air in the bronchial tubes at the same instant of time that the pulse was communicated through the bloodvessels.

The phenomenon to which attention is called by this paper, though we are not aware that it possesses any special diagnostic or prognostic importance, inasmuch as the nature of the case will probably, in every instance, be sufficiently evident without it, is at least one of very considerable interest as a medical problem alone.

XI. *The Brassfounders' Ague.* By EDWARD HEADLAM GREENHOW, M.D.—An abstract of this communication, in which attention is again called to the irregular paroxysms, resembling the paroxysms of ague, affecting those exposed to inhaling the fumes of deflagrating zinc, is published in the number of this Journal for July, 1862.

XII. *On the Connection between a Local Affection of the Lymphatic System and Chylous Urine; with Remarks on the Pathology of the Disease.* By H. V. CARTER, M.D., Professor of Anatomy and Physiology, Bombay Medical College. Communicated by Prescott G. Hewett, F.R.

C. S.—In this communication Dr. Carter gives the history of three cases of disease of the lymphatic system, and then proposes a new view of the nature of the obscure disease characterized by a chylous condition of the urine.

The first case is a well-marked instance of local derangement of the lymphatic system, accompanied by the accumulation of chyle, and its occasional discharge from the cutaneous surface. The urine was unaffected.

In the second case, a local affection of the lymphatic vessels and glands existed, and there was a frequent external discharge of chyle. The urine, moreover, in this case was frequently chylous, in the strict sense of the word.

In the other case, without any external *local* affection of the lymphatics, the patient presented a striking instance of chylous urine, which, as in the other, was intermitting in character.

The view advanced by Dr. Carter is, that chylous urine is connected with an *abnormal distribution of the chyle, which becomes admixed with the urine in a direct manner*, and not through abnormal excretion of the chyle, as Prout supposed, or through its absorption, as is maintained by Dr. Beale.

In the cases where the chyle was poured only on the surface of the body—on the thigh and the scrotum—lymphatic vessels and the glands could be seen to be greatly enlarged and dilated, and this state must have extended upwards, as high indeed as the thoracic duct, for the fluid discharged was not mere lymph, but a rich chylous liquid. Of course if the chyle, in place of being poured out externally, had been turned upon the urinary mucous tract, where local hypertrophy and dilatation of the lymphatic system might readily exist, for the lymphatics of the bladder, ureters, &c., are very numerous and superficial, all the phenomena of chylous urine would have been witnessed. Although direct anatomical proof of the accuracy of these views has not been obtained, they must, nevertheless, be acknowledged to afford a more satisfactory explanation of the phenomena observed in chylous urine than any hitherto offered.

This paper is accompanied by a plate representing the appearance of the parts affected in one of the patients, and also the microscopical appearances of the fluid discharged, both externally and from the bladder.

XIII. *On a Case of Chylous Urine.* By A. T. H. WATERS, M. D.—In the case here related of chylous urine, the patient became well while taking very large doses of an astringent remedy, gallic acid; sometimes to the amount of 135 grains *per diem*. On this account, Dr. Waters argues that the affection is one whose main pathological feature is a relaxed condition of the capillaries of the kidneys.

XIV. *Observations on the Tactile Sensibility of the Hand.* By EDWARD BALLAUD, M. D.—A short abstract of this most elaborate paper, which occupies nearly sixty pages of this volume, is published in the number of this Journal for July, 1862.

Two plates, each containing two figures, are attached to this communication, showing the precise spots at which measurements of the sensibility of the hand were taken, with a number affixed giving the two measurements, by which the sensibility of each spot is calculated. The palmar and the dorsal, and the radial and the ulnar sides of the hand and fingers, are thus represented. These plates are reduced from photographs, so as to be undoubtedly accurate.

XV. *On the Influence of Paralysis, Disease of the Joints, Disease of the Epiphysial Lines, Excision of the Knee, Rickets, and some other Morbid Conditions upon the Growth of the Bones.* By GEORGE MURRAY HUMPHREY, M.D.—This communication, of which an abstract is published in the number of this Journal for July, 1862, is intended as a continuation of the interesting paper on the growth of long bones and of stumps in the last volume of *Transactions*.

It is accompanied by two plates, containing eleven figures, representing several deformities and rickety bones.

XVI. *An Analysis of 230 Cases of Lithotomy.* By THOMAS BRYANT.—In this paper Mr. Bryant presents an analysis of all the cases of lithotomy that could be collected from the records of Guy's Hospital for the last twenty-five years. Two hundred and thirty cases are thus brought together, and tabulated as follows:—

Age of patients operated upon	Num. of cases.	Frequency of occurrence, in percentages.		Recoveries.	Deaths.	Percentage fatal.	Proportion fatal.		Num. of cases.	Fatal.	Proportion.
2 years	6	2.60	73 cases, or 31·17 per cent.	5	1	16·66	1 in 6	Under 10 years of age.	129	6	1 in 21½
3 "	21	9.13		21	–	—	—	*Med. T. & G.*	109	8	1 "13⅝
4 "	23	10.00		23	–	—	—	Under 15 years of age.	160	8	1 "20
5 "	23	10.00	Under 10 yrs. of age, 129 cases, or 56 per cent.	21	2	4.34	1 in 11½	*Med. T. & G.*	130	14	1 "9⅞
Betw'n 5 & 10 yrs.	56	24.34		53	3	5.34	1 in 18½	——	–	–	—
" 10 " 15	31	13.47		29	2	6.45	1 in 15½	——	–	–	—
" 15 " 20	18	7.82	38 cases, or 16·5 per cent.	15	3	16,66	1 in 6	Between 15 & 40 yrs. of age.	38	6	1 " 6⅓
" 20 " 30	13	5.65		11	2	15 38	1 in 6½				
" 30 " 40	7	3.04		6	1	14.28	1 in 7	*Med. T. & G.*	23	5	1 " 4⅗
" 40 " 50	7	3.04	32 cases, or 13·9 per cent.	3	4	57.14	1 in 1¾	——	–	–	—
" 50 " 60	19	8.26		8	11	57.89	1 in 1 8/11	Above 40 yrs. of age.	32	16	1 " 1
" 60 " 70	5	2.17		2	3	60.00	1 in 1⅔				
" 70 " 80	1	.43		—	1	100.00	1 in 1	*Med. T. & G.*	33	21	1 " 1½
	230	99·95		197	33	14.34	1 in 7				

The whole of the cases, with five exceptions, were operated upon by the lateral method. In four of the five the median operation was performed, one of which died. In one the stone was extracted through the rectum.

The well recognized fact that calculous disease is more often seen in early life is the first point attracting attention in this table; more than one-half, or 56 per cent. of all the cases having taken place in children during the first ten years of life. Mr. Bryant states, moreover, that the healthiest looking and apparently best nourished children admitted into a London hospital are those suffering with stone. According to this statement, in childhood, stone in the bladder does not appear to be a disease of debility, but, on the contrary, to belong to a condition of body which is not far from sound health.

Another most prominent point is the great difference in the mortality of the operation of lithotomy at the different periods of life. The cause of death in the majority of the fatal cases was clearly shown to have been renal disease; and it may be safely asserted that from the earliest to the latest periods of life the risks of lithotomy are exactly commensurate with the extent of the disease in the renal organs. Thus, in young children, when such disease is not of frequent occurrence, a good result, as a rule, takes place; but, at a later period, when its presence is more frequent, a

bad result has too commonly to be recorded. The best and surest guide to the diagnosis of this complication is the duration of the symptoms, and in proportion to the period of their existence is the renal affection, as well as its extent, to be suspected, and, as a result, is the danger of the operation to be dreaded. The early detection of a calculus becomes, therefore, an important point, and its early removal a necessity.

In a postscript to this communication, Mr. Bryant gives the following table, for the purpose of showing the apparent influence of chloroform upon the mortality of lithotomy.

Cases in which chloroform *was* given.						Cases in which it was *not*.			
Ages.	Number.	Cured.	Died.	Percentage.		Number.	Cured.	Died.	Percentage.
5 years of age and under .	40	38	2	5.		31	30	1	3.33
6 years and 10 inclusive .	38	35	3	7.8	6.1	21	21	–	— 3.1
11 " 15 .	19	18	1	5.2		11	10	1	9.09
16 " 20 .	10	7	3	30.		8	8	–	
21 " 30 .	5	3	2	40.	35.2	8	8	–	
31 " 40 .	2	1	1	50.		5	5	–	
41 " 50 .	4	2	2	50.		3	1	2	66.66
51 " 60 .	9	3	6	66.	62.5	10	5	5	50.
61 " 70 .	3	1	2	66.		2	1	1	50. 56.2
71 " 80 .	–	–	–	——		1	–	1	100.
	130	108	22	16.9		100	89	11	

The weight of evidence afforded by this table, taking the numbers as a whole, apparently tends against the administration of chloroform. The mortality of the operation of lithotomy without the use of the anæsthetic was 11 per cent., and with it 16.9 per cent.; the difference between the two classes of cases was, therefore, 5.9 per cent.; the use of chloroform raising the mortality 50 per cent.

XVII. *On the treatment of Acute Rheumatism, considered with regard to the liability to affections of the Heart under different remedies.* By W. H. DICKINSON, M. D.—When it is considered how large a proportion of the multitudes who die every year from valvular disease of the heart, owe their fate to the progressive mischief initiated by rheumatic fever, we may appreciate the importance to humanity of any discovery by which this fatal alliance is prevented. From the multitude of facts which the profession now possesses on the subject, we believe that it may safely be concluded that the carbonates of potassa and soda, with those of their other salts, which in the body must be presumed to be converted into the carbonates, exert an especial curative power over rheumatic fever, and, if given in time, will completely protect the heart from the dangers by which it is surrounded. It is worth remarking, in connection with this subject, that, contrary to what would have been expected, no part of the prohibition which is afforded by full doses of the alkalies, or of decomposable salts, appears to be afforded by quantities which fall short of a certain definite amount. As far as the heart is concerned, "partial alkaline treatment" is useless.

The following is an abstract of Dr. Dickinson's tables, which include 164 cases :—

Number of table.	Treatment.	Number of cases so treated.	Cases in which h'rt became affected.	Average number of days in hospital.	Cases which ended fatally.
1	Venesection, with other remedies . .	8	4	41	0
2	Mercury	6	2	29	0
3	Nitre	7	1	27	0
—	Reputed specifics (including guaiacum, Dover's powder, opium, iodide of potassium, and quinine)	7	4	46	0
4	Salines (less than ʒiij of salts daily .	7	2	33	0
5	Salines with nitre	28	6	32	0
6	Salines with nitre and mercury . . .	7	1	36	1
7	Salines with mercury	11	3	43	1
8	Salines with specifics	9	5	35	0
9	Partial alkaline (less than ʒiv of salts daily)	8	3	28	0
10	Partial alkaline, with other medicines .	9	3	40	0
11	Full alkaline (more than ʒiv daily) . .	22	1	25	0
12	Full alkaline, with other medicines . .	26	0	30	0
13	Salts of ammonia	3	0	22	0
14	Incapable of classification	6	1	65	0

XVIII. *Amaurosis consequent on Acute Abscess of the Antrum, produced by a Carious Tooth.* By S. James A. Salter, M. B., F. L. S., Surgeon-Dentist to Guy's Hospital.—An abstract of this communication, giving the details of a very exceptional and important case, is published in the number of this Journal for October, 1862.

This paper is accompanied by a plate giving the appearance of the peripheral terminations of the optic nerves in the retina of the two eyes, as seen by the ophthalmoscope.

XIX. *Two Cases of extensive Arterial Obstruction from separated Cardiac Vegetations, followed by Gangrene of the Lower Extremities and Death.* By S. J. Goodfellow, M. D.—An abstract of this communication is published in the number of this Journal for October, 1862. Instances of the plugging of arteries by so-called vegetations from the heart are not uncommon, but the extent to which the plugging took place in these cases, the number of vessels involved, the morbid changes in and around the walls of the vessels at the seat of obstruction, and the consequences which ensued give a peculiar interest to those here recorded by Dr. Goodfellow.

This paper is accompanied by a coloured plate, representing the condition of the heart and bloodvessels, and the spleen and kidney.

XX. *Case of Iliac Aneurism.* By James Syme, F. R. S. E.—An abstract of this communication is published in the number of this Journal for October, 1862. In a postscript, in the volume before us, which we will transcribe, we learn the termination of this very extraordinary case. Mr. Syme here writes as follows :—

"This was communicated to the Society only a month after the operation, in consequence of my having occasion to be in London at that time. The favourable anticipations of complete recovery then entertained were not realized, as the general health, from having been greatly impaired, did not improve in proportion to the local progress. The patient's state seemed very precarious until the end of nearly three months, when so decided a change for the better took

place as to remove all anxiety. But soon after this, from unfortunately sleeping with an open window, inflammation of the pleura was excited, and it proved fatal on the 31st of July. On examination it was found that the external iliac had been torn completely across and drawn up into the pelvis, where its open mouth, being mistaken for a slit, had imposed upon the gentlemen who had assisted me, and myself, so as to make us suppose that the ligatures were applied immediately above instead of below the bifurcation of the common iliac, the whole extent of which was imbedded in the sac. The true state of matters, thus ascertained, tends to strengthen the principle of practice which it was the object of the paper to maintain."

XXI. *Contribution to the Statistics of Cancer.* By W. M. BAKER, M. R. C. S. Communicated by James Paget.—An abstract of this important contribution to surgical statistics is published in the number of this Journal for October, 1862.

XXII. *Report upon Syphilis, with reference to the more Mixed and Unusual Forms of the Primary Symptoms.* By JEFFREY A. MARSTON, M. D., Assistant Surgeon of Royal Artillery. Communicated by Henry Lee, F. R. C. S.—In this paper the writer, who, as an army medical officer, enjoyed certain obvious advantages in his observations, speaks of syphilis, and with especial reference to its more unusual, mixed, and anomalous forms. The following points are particularly treated of:—

I. The varieties of infecting sore.

II. The results of auto-inoculation.

III. The occurrence of syphilitic infection after suppurating bubo.

IV. The occurrence of constitutional symptoms following an urethral discharge clinically identical with gonorrhœa.

V. The bubon d'emblée.

VI. The periods of incubation preceding the appearance of the two kinds of venereal sores, and the absence of any proof that we can guarantee against constitutional infection by any abortive treatment applied to the primary syphilitic lesion.

On each of these points there is much that is valuable in this Report. Reports of cases made with intelligence, and under unusual facilitating circumstances, and judged after a thorough acquaintance with the conclusions of others, render it, in our opinion at least, one of the most remarkable papers that has appeared among the many recent important contributions to our knowledge of venereal disease.

XXIII. *Case of Aneurism of the External Iliac and Common Femoral Arteries, treated by Digital Pressure. With Observations.* By HENRY LEE.—The case of aneurism reported in this communication is one of considerable interest in several respects; but the observations thereupon are not so remarkable.

The patient, a man 31 years of age, experienced some pain in the left groin after a fall while running; this increased, and a swelling, that "jumped," made its appearance. At the time Mr. Lee saw him, or some four months after the fall, the left thigh was much swollen, with some marks of livid discoloration; in the groin was a tumour four inches in diameter, and pulsating strongly. Continued digital pressure upon the left external iliac artery was kept up for some five weeks with occasional interruptions; the pain, the pulsation, and the thrill were at one time greatly diminished, but afterwards again increased. The pain and swelling became greater, the disturbance of the patient's constitution was more considerable, and four months after he came under Mr. Lee's observation he died, the limbs having become cold on the previous day.

The examination of the affected limb, which was the only portion of the body that could be examined, showed the following condition:—

"The superficial femoral artery having been exposed, it was traced to its termination in the common femoral, and this was dissected to its termination in the remains of the sac of the aneurism. All the coats of the artery were here seen to become suddenly dilated, and after the course of a few inches to terminate in an irregular and fimbriated margin. The greater part of the walls of the aneurismal cavity was formed by the surrounding structures, a complete separation having taken place between the upper and lower part of the artery. In the situation of the aneurism, when first observed, was a very firm coagulum of fibrin, of an oval form. This formed a sac complete in every part, with the exception of its two extremities, which lay in the direction of the natural course of the artery.

"The left iliac fossa contained a large cavity filled with coagulated blood which extended nearly as high as the umbilicus. The body of the pubes, and the femur for several inches below its lesser trochanter, presented a rough, irregular surface, from which small particles of bone could be detached with the nail. All the parts thus affected were in contact with the blood effused from the sac of the aneurism.

"The superficial femoral artery was found to contain portions of decolorized fibrin, which had evidently passed into it from above. A piece of this artery was removed, and although not presenting any marks of disease to the naked eye, it was torn across by very moderate extension made with the fingers."

The complete separation that existed in this case between the upper and lower portions of the artery which formed the aneurism, makes the subject of the kind of treatment suitable to the case a very important point for consideration, but we see nothing to remark upon in what is here said.

XXIV. *Report of the Committee appointed by the Royal Medical and Chirurgical Society to investigate the subject of Suspended Animation.*—A summary of this valuable report is published in the number of this Journal for October, 1862. W. F. A.

ART. XVI.—*Clinical Medicine. Observations Recorded at the Bedside, with Commentaries.* By W. T. GAIRDNER, Physician to the Royal Infirmary of Edinburgh, and Lecturer on the Practice of Medicine. Edinburgh: Edmonson & Douglas, 1862. 8vo. pp. 741.

THIS work claims at the hands of he reviewer a larger space than we can at present accord to it. The author's previous contributions to medical literature have secured for him the reputation of an earnest worker in the study of disease, a close and careful observer, a proficient in physical diagnosis, an acute reasoner, and a truth-seeker. At the present moment, indeed, among those who are devoted to clinical medicine, few, if any, hold a higher place in the estimation of medical readers on this side of the Atlantic than Dr. Gairdner. They are fully prepared to receive with satisfaction a work from his pen with the above title. We should be glad to give the work an extended analytical reviewal. We should render a service by so doing to the readers of this Journal; but the service will perhaps not be less if our brief notice may lead some to read the work who would be satisfied with a more comprehensive examination of it by the reviewer.

The work is made up of various clinical lectures, together with a variety

of papers communicated at different times to medical societies. Several of the latter have already been published in medical journals. The work is fragmentary, that is, the diverse subjects treated of have no special connection with each other; all, however, are subjects of interest and practical importance. We must content ourselves with an enumeration of them, and a few annotations with reference to each.

1. Retrospect of Cases treated during the Session 1855–'56.

The author devotes a lecture to a summary of facts pertaining to the histories and treatment of the fatal cases which had been under observation in the Edinburgh Royal Infirmary. The lecture will be read with interest by those connected with large hospitals, either as students or practitioners.

2. Remarks on the Treatment of Pneumonia, and especially on the Treatment by Bloodletting.

Although there are reasons why pneumonia should not be considered as in all respects the representative of acute inflammations generally, the profession seem to have agreed to regard it in this light. As so regarded, two important questions are at this moment matters of controversy. One of these questions is, has the type of the disease changed so that the appropriate plan of treatment now called for differs from that which was formerly efficacious? The other question pertains to the propriety of bloodletting; is it ever called for, and if so, under what circumstances? With regard to the former of these questions, Dr. Gairdner considers it to be a question of observation, and he accepts the statements of his seniors who have been able fairly to compare the disease at different remote periods. As regards the second question, he thinks that while, as a rule, the modern comparative disuse of bloodletting is well founded, it may be required in exceptional cases. The *criterion* of such cases, in his view, will be the urgency of the fever, pain, and dyspnœa, and the general strength and condition of the patient, not the pathological condition of the lung, as ascertained by physical diagnosis.

3. Five Years' Hospital Experience of Pneumonia.

The aggregate number of cases treated during these five years is stated to be from 60 to 100. During this period, out of ten or eleven fatal cases of inflammatory affections of the lungs, only *one* was fairly a death from idiopathic or uncomplicated pneumonia. This result is regarded as showing the very slight tendency of pneumonia *per se* to a fatal result; in other words, death is owing almost invariably to the coexistence of other affections, either antecedent or concomitant. The author states that he has adopted no routine method of treatment in pneumonia. He believes that "what is to be treated is not so much the *pneumonia* as the *individual patient*." He attaches more value to antimony than to any other remedy. Many cases were treated with only the common cough mixtures. He gives opium as a palliative. Mercury he employs very little. Stimulants were used freely when the vital powers seemed in danger of failing. Food was neither withheld nor pressed.

4. On the Use of Alcoholic Stimulants in Hospital Medical Practice.

This lecture is designed to suggest certain inquiries respecting the use of alcoholics in hospital practice. Has it not become a custom, of late years, to direct spirits, wine, and malt liquors to hospital patients too indiscriminately? and is not such a custom productive of harm, if not physically, in a moral point of view, by conducing to intemperate habits? We fear there is occasion for these inquiries in the hospitals of this country as well as in Europe. Dr. Gairdner regards alcoholic stimulants as *medicines*, not

as *food* after the view of Dr. Todd. The latter view, doubtless, leads to their freer use than if they are employed purely for a remedial object. Dr. G. recommends that monthly returns should be made of the amount of alcoholic liquors supplied in each ward, and an average of the amount given daily to each patient. "By such averages," he remarks, "physicians would be invariably guided to the truth; and the results of various practice would, when carefully compared, supply data hitherto wanting for the settlement of a great many scientific questions connected with alcoholic stimulants."

5. The Duty of the Physician with respect to Alcoholic Stimulants.

Under this head is introduced a review of Professor Miller's volume on "Alcohol; its Place and Power." Dr. Gairdner's views seem to us to be eminently judicious, avoiding, on the one hand, fanaticism on the subject of temperance, and, on the other hand, recognizing fully the grave responsibilities of the physician in connection with this subject. He quotes the remarks of James Jackson on the subject in his "Letters to a Young Physician," as embodying fully his own views.

6. Influenza.

In two lectures on this subject he gives the facts of an epidemic which had recently occurred. We believe the author to be correct in regarding the disease as essentially a fever, of which the catarrh is the local expression. He cites the statistics contained in the Registrar General's Report of the Mortality in London, as showing a considerable increase of the death-rate in consequence of the effect of the epidemic influence on different diseases.

7. Distinctions of Typhus and Enteric (Typhoid) Fevers.

Over one hundred pages of the volume are occupied with typhus and typhoid fevers, including some remarks on scarlatina. Dr. Gairdner prefers Prof. Wood's title, enteric, to typhoid fever. He adopts the doctrine of the non-identity of this fever and typhus. Most of our readers, doubtless, will agree with him in this opinion, albeit the identity of these fevers is maintained by such high authorities as Stokes, Magnus Huss, and others. He gives some facts which go to show the origin of the two fevers from two distinct poisons. He suggests the propriety of separating typhus and typhoid cases in hospitals, in order to secure the latter from the infectious miasm derived from the former. He is of opinion that typhus has within the last few years undergone a modification in its severity, being less fatal than formerly, and also that some of its type features have changed. We must pass by this very interesting portion of the work with these few notes, commending it to the careful perusal of the reader.

8. Pathology and Treatment of Cholera.

The author gives concisely the morbid appearances found on the examination of eighty-nine fatal cases in the epidemic of 1849. The examinations were made in the theatre of the Royal Infirmary by Dr. G. in the course of his duties as pathologist to that institution. His general conclusions as to the treatment are contained in the following extract:—

"We are most firmly persuaded that cholera, like all other diseases dependent on a specific poison, has a spontaneous tendency to cure after the virus has exhausted itself; and that the treatment will be most efficiently and successfully accomplished by discarding, in the majority of cases, heroic remedies, by following out the indications afforded by the feelings and desires of the patient, and, as Cullen said, by attending to those conditions and means calculated to 'obviate the tendency to death.' Now, all that we yet know of the pathology of this disease tends to ascribe the fatal result in the collapse to a slow asphyxia induced by the imperfect fluidity of the blood. We would, therefore, endeavour

by every means to supply fluid to the blood through the intestines, the skin, the lungs, or at least to prevent, in as far as possible, the fluids of the body from being thrown off by those channels."

9. Syphilis.

After a brief but clear account of the secondary and tertiary symptoms, this lecture is occupied with an account of several cases which had previously been made the subject of bedside remarks.

10. Hysteria; Delirium Tremens; Dipsomania.

Delirium tremens is regarded as a spontaneously curable disorder, but is to be treated by remedies given in strict subordination to good nursing and carefully adjusted diet and regimen. Opium, chloroform, and alcoholic stimulants are useful if judiciously adapted to the indications in different individual cases. In connection with dipsomania the author offers some highly judicious remarks on what may be called moral imbecility. Here is a subject of great difficulty, but not less important than difficult in its medico-legal relations.

11. Pleuritic Effusion; Diagnosis and Prognosis; Question of Thoracentesis.

This subject occupies nearly a hundred pages. The points involved in the diagnosis are considered in connection with several cases which offered unusual features. In respect of the prognosis of acute pleurisy, the author's experience is quite opposed to a statement contained in another recent work.[1]

Dr. G. states that, during eleven years of hospital practice, he has met with only two cases of fatal acute pleuritic effusion. The inference is, that thoracentesis is very rarely called for as a measure to save life. May it not be advisable, however, both in acute and chronic pleurisy, in cases in which the amount of effusion is not sufficient to place life in danger? The author is inclined to the affirmation to this inquiry, since he has become acquainted with the facts contributed by Dr. Bowditch, of Boston, and the means employed by Dr. B. to withdraw the liquid without the introduction of air.

12. Pneumothorax.

A case is given in which pneumothorax from perforation ended in recovery. Dr. Gairdner asserts that in at least six or seven cases he has witnessed phenomena denoting cured pneumothorax. The general impression, as we suppose, is that this affection is incurable, and this is certainly the rule. We here met with an instance in which all the characteristic physical phenomena were unmistakable, and the recovery was complete. In that instance the perforation was supposed to be non-tubercular. But, if not cured, pneumothorax may continue indefinitely and the health of the patient apparently be perfect. We communicated not long since to the New York Pathological Society a remarkable instance of this kind. In this case the perforation proceeded from tubercle, but the latter affection was arrested, and the patient was cut off by an attack of pneumonia. The pneumothorax was not suspected until the attack of pneumonia, but, from the appearances after death, the former affection must have existed for a long period. The cure is effected by means of the pleurisy, the perforation becoming sealed up by the pleuritic adhesions. Pleurisy is thus both protected against perforation and a means of cure when perforation occurs.

13. Phthisis Pulmonalis; Empyema and Pneumothorax; Hydatid Tumour of Lung; Emphysema of Lungs; Remarks chiefly on Physical Diagnosis.

[1] Renewal of Life. By Dr. Chambers. Reviewed in this number.

These subjects occupy nearly fifty pages. They are illustrated by cases which are interesting and instructive. With respect to emphysema the reader will be disappointed in not finding an exposition of Dr. Gairdner's views of the mechanism of this lesion. We regret this deficiency the more because, with the exception of a review in the *British and Foreign Medico-Chirurgical Review*, number for April, 1853, his writings on this subject have not been republished in this country, and are, therefore, not so well known as we could desire. The chief point of interest which is considered in this volume is the reality of the auscultatory sign described by Laennec as pathognomonic of emphysema, viz., the *râle sec à grosses bulles*. This sign has been ignored by modern auscultators. Dr. Gairdner thinks there is such a sign, and that Dr. Laennec's description is correct. We must confess that the proof is not to our mind altogether clear.

14. Aneurism.

To this subject over a hundred pages are devoted. It is by no means the least valuable part of the book; for those especially who are interested in the physical diagnosis these pages will only repay a careful perusal. The conclusions drawn from the study of the cases which are presented are as follows:—

"1st. That aneurism, when accompanied by well-marked angina pectoris, is probably situate in the ascending portion of the arch, and near the cardiac plexus of nerves. The natural course of such aneurisms is to burst into the pericardium, or to compress, perhaps open into, the auricles or the pulmonary artery, causing, in many cases, cyanosis and sudden death."

"2d. That internal aneurism, when attended by laryngeal symptoms, is likely to be so placed as to involve the right or the left recurrent nerve, *i. e.*, either in the innominate artery, or on the posterior and inferior aspect of the arch; in either of which situations, but especially in the latter, an aneurism may cause death by laryngeal suffocation before it is large enough to be readily detected by physical diagnosis."

Tracheotomy, under these circumstances, may prolong life, and is warrantable.

"3d. That aneurism, characterized chiefly by bronchial asthma and orthopnœa, is probably situate in the commencement of the descending portion of the arch, or, at all events, so as to compress the pulmonary plexus of nerves; and that its consequences may be looked for in the obstruction of one or both bronchia, at first with the symptoms and physical signs of asthmatic bronchitis, and afterwards of pneumonia or pleurisy."

"5th. That dysphagia indicates pressure either on the œsophagus, or on the pneumogastric nerve, and a corresponding situation of the tumour."

"6th. That all aneurisms coming within the range of physical diagnosis, and not attended by any of these symptoms, must necessarily arise either from the descending aorta, below the range of the pulmonary plexus, or from the upper part of the arch, projecting upwards and forwards; as it is in these situations alone that a thoracic aneurism can attain sufficient bulk to be discoverable, without involving important internal structures, and leading to very marked functional disturbance."

Dr. G. bears testimony to irregularity of the pupils as one of the signs of an aneurismal tumour pressing on the sympathetic nerve.

15. Cardiac Murmurs.

The sixty-six pages occupied with this subject form a very valuable portion of the work. The inadequateness of murmurs alone as signs of grave lesions is enforced and exemplified by a series of cases. The distinctive characters of the aortic and mitral murmurs are clearly described and made still clearer by means of diagrams; so also of pulmonic and tricuspid mur-

murs. The latter (*i. e.* tricuspid), Dr. G. thinks, are much more frequent than is generally supposed; they are not infrequently confounded with mitral murmurs. We commend this portion of the work to those engaged in the delightful study of cardiac auscultation.

16. Retrospect of 200 Cases under Treatment in the Royal Infirmary, during the Winter Session 1859–'60.

This, with a concluding lecture on the "Study of Clinical Medicine," occupies the last eighty pages of the work.

We repeat that, had time and space permitted, we should gladly have engaged in an extended analytical review of this work. We consider it to be a very valuable contribution to the literature of practical medicine. The cases which are given were recorded either by the author or under his dictation; and we agree with him entirely in the opinion that this is necessary, in order that the clinical teacher may become thoroughly conversant with the cases which he undertakes to study for the benefit of his pupils as well as for his own improvement. It seems to be a common impression that any young physician or an advanced student is, at once, as a matter of course, competent to record cases; but the truth is, it is an art to be acquired by practice, requiring not only a certain amount of knowledge, but an aptitude for observation and description which is to be corrected and improved by discipline, and which some can never acquire. To exercise the senses intelligently and accurately, to observe and reason without preconviction or bias, to describe literally and truthfully—these are accomplishments by no means so general or so easily acquired as many seem to suppose. As evidence of this, how few of the many contributions to clinical medicine command or deserve entire confidence!

Of Dr. Gairdner as a clinical teacher we have already spoken. We have in this volume his bedside teachings, divested, it is true, of the interest and force derived from witnessing the cases and listening to his voice, but, as some compensation for this loss, perhaps expressed with more precision than is to be expected in an oral discourse. As an American, it is refreshing to find in the volume frequent references to his co-labourers on this side of the Atlantic. The names of Jackson, Ware, Bowditch, and others, are repeatedly mentioned. Aside from the practical information which the volume contains, its tone is well suited to promote, in the minds of those entering upon clinical study, the spirit of a true philosophy.

A. F.

ART. XVII.—*A System of Surgery, Theoretical and Practical, in Treatises by various Authors.* Edited by T. HOLMES, M. A., Cantab., &c. &c. In four vols. Vol. III. London, Parker Son and Brown. 1862. 8vo. pp. 916.

THE third volume of this authoritative publication has been for some months upon our table, having made its appearance in excellent time for an enterprise of its peculiar character, and considering the number and occupation of the parties engaged upon it. They and their industrious editor have done so well in their progress that we may look forward with confidence to an early fulfilment of the promise of the preface in the appearance of the

concluding volume, with the index, which is to render the whole at once a most convenient and complete text book on hospital surgery.

The present volume at least equals its predecessors in practical interest and value, both as to subjects and the mode of treating them. Indeed we are tempted to regard it as superior in some respects. The circle of authors extends beyond the officers, mostly junior, of the London hospitals, and thus includes more weight and less merely local character; many of the subjects involve the most important and freshly mooted questions in surgery; and all appear to be considered not only with practical skill and experience, but with a careful and generally intelligent reference to the labours of the latest authorities of this country, as well as of Europe. These constant references are invaluable by enabling the reader to follow out his author in his whole course of inquiry, and thus add much of the eclectic usefulness of an encyclopedia to the more direct availability of the work as a clinical guide.

There is not much to be said in favour of the order of arrangement as thus far exhibited. In this respect the editorial offspring of Mr. Holmes must share the lot of many other valuable productions of his British brethren. His system is rather a collection of essays developed and brought together with a common object, but very much at the convenience of the authors, yet under the rule of a director who, doubtless, intends to reconcile all confusion and to avoid the trouble which no classification will prevent, by the ample index which he has announced as in course of preparation.

The papers of this volume are on operative surgery, on the diseases of the organs of special sense (excepting the eye, already published), of the air-passages, and of the organs of circulation, locomotion, and innervation. Lastly, diseases of the organs of digestion are commenced, by a treatise on the affections of the tongue.

In regard to operative surgery, a regular treatise would have led to constant repetition of other portions of the work, and is therefore not attempted. The section is limited to a chapter on minor surgery, one on amputations, another on anæsthesia, and a fourth on plastic surgery, illustrated by the description of such operations as could be conveniently separated from the sketches of the lesions for which they are practised.

The article on minor surgery is brief but practical, and sufficiently comprehensive for a series which includes the consideration of minor surgery topics under various other heads.

Bandages and their applications are disposed of in the first eight pages. Then come the immovable apparatus, in various forms of plastic dressings, for fractures and articular affections; sutures and their application; counter-irritation; acupuncture; electro-puncture; hypodermic and endermic medication; issues; setons; blood-letting; vaccination; caustics; and, finally, the strangulation of nævi and other tumours.

Perhaps the most interesting portion of this chapter is that on sutures. It might have been still more explicit with advantage, and yet is up to the times on the use of silver and iron wire. The author is not very clear in his account of the introduction of the metallic suture into general practice. Dr. Simpson is mentioned, without a date, as the first to draw attention to the subject in his country, and Dr. Sims is then named as the first to make the application in America, "in 1849." The author cites the Anniversary Discourse, before the N. Y. Academy of Medicine, for 1858, by Dr. Sims, "On Silver Sutures in Surgery," without considering that this discourse preceded the paper of Dr. Simpson, and may have prompted the investi-

gations reported in that paper. He also quotes the passage from Fabricius ab Aquapendente, in which the wire suture was recommended two centuries ago; and refers to a report in the *London Lancet*, Nov. 29, 1834, which shows that Mr. Gossett successfully treated a case of vesico-vaginal fistula by silver-gilt wire sutures, fifteen years in advance of Dr. Sims. He should have referred to the experiments of Levert in America (see this Journal for May, 1829), and the cases of Dieffenbach in Germany, and of Mettauer in this country (see this Journal for Nov. 1833 and Feb. 1838), to show that the metallic substitute was known and appreciated in modern practice on both sides of the Atlantic, before the date of Mr. Gossett's publication. Heister, too, as well as Fabricius, could be quoted to prove that the idea of the wire is by no means a recent one in surgery. Still, Dr. Sims is entitled to the merit of its final introduction into practice, and deserves the principal share of the thankful acknowledgment which is given in this article to Dr. Simpson.

The author agrees with Dr. Sims in preferring the silver to the iron wire. A considerable experience with both materials, and especially with iron, inclines us to coincide entirely with Dr. Simpson in being content with well annealed iron wire as quite equal to silver; but a still larger experience with lead wire has convinced us that it is more desirable than either silver or iron in the great majority of cases, on account of its greater cheapness than silver, and its superior pliability. The only objection to the lead is its want of strength in case of strain; though, in some instances, this is a positive advantage.

The next two essays are on amputations and anæsthetics. Their author, Mr. Joseph Lister, Prof. of Surgery in the University of Glasgow, has given two papers, which are excellent, theoretically, practically, and historically; each one being so good a resumé, in fact, that we should be glad to see them published together by their author, separately from the "system," like the tract on gunshot wounds, by Longmore. With some additions and illustrations they would make a very desirable companion to that admirable little book, for the army surgeons of both countries.

There are certainly no subjects upon which the surgeons of America are, and for two years past have been, more keenly alive than these two of amputations and anæsthetics. A vast deal of individual experience, of course, has been acquired, and must continue to accumulate upon the various practical questions which were still more or less unsettled on these points among sensible practitioners at the outbreak of our civil war. But, until the master records of this experience have reached us, in some tolerably digested form, we know of nothing that would attract a closer practical attention, or receive a more effectively useful sifting than a summary like this of Professor Lister's, which is so evidently the work of an accomplished clinical teacher and hospital operator, and so free from the merely mechanical routine of the dissecting room. Our younger army surgeons may safely adopt Mr. Lister's general principles of operating and dressing; and even those who begin to feel like veterans with the amputating knife and in the hospital, may study his pages with immediate advantage to their labours, and with probably still greater benefit to the final establishment of their own conclusions. We regret, therefore, our inability to dwell upon many matters which have struck us as quite worthy of special consideration; and we sincerely hope that the author may allow the separate circulation of both papers, in such a shape as will bring them within reach of the hundreds who could soon test their precepts in the field.

The article on anæsthetics is short, but clear and practical, at least in regard to chloroform. Very little is said about ether, except that it is considered less potent and more irritating, less agreeable in odour, more volatile, and more inflammable than chloroform; and that it has therefore been generally superseded by the latter in Europe, although still extensively used in America. Both agents have been so largely employed by intelligent operators in the recent campaigns of our armies, that some definite comparison must by this time have been put on record, which may hereafter determine the real superiority, for availability and pleasant action, of chloroform to ether, and its approximately or entirely equal safety under proper management. It is to be hoped that some of our army surgeons have at last discovered the most effective and economical mode of *safely* using both ether and chloroform for anæsthetic purposes. They have probably become convinced that the danger to life, which amounts to nothing, without gross carelessness, in the employment of ether, is not seriously increased in the resort to chloroform, and may be prevented almost wholly by sufficient care in the use of either of these two anæsthetics. They must be satisfied also, by this time, that great prostration from shock or other causes is or is not a contra-indication for anæsthetic action; and they ought to be able to tell us whether, in case of such prostration, ether or chloroform is the preferable agent.

Prof. Lister expresses strong doubts of the injurious agency of chloroform in some of the alleged cases of fatal inhalation. Nor does he agree that the danger is any greater in disease of the heart. He is more inclined to attribute a positively sustaining power to the chloroform anæsthesia, which enables patients to survive under depressing influences that might otherwise destroy them. This view of the action of chloroform leads him to regard it as an important agent to be relied upon in averting the danger of prostration from injury, and, as therefore aiding very materially in the performance of operations before reaction has commenced. We believe this position to be in accordance with the civil and military experience of this country, as well as of Europe, and are disposed to regard it as applicable to ether no less than chloroform, at least in hospital practice. What may be the rule, as determined in the field, we have not learned from actual experience. Chloroform, however, is so much more convenient for carrying purposes, that the question between it and ether, in the field, may be of comparatively little practical moment. If ether can be transported without loss from evaporation as securely as chloroform, and can be made to produce its anæsthetic effects as promptly and with as small a consumption of the supply, which is necessarily limited on such occasions, then the certain difference in favour of the ether as to safety, at least with careless operators, would justify, if not demand, its preference to chloroform. We hope to see the administration of ether shown to be, in proper hands, as prompt and economical in its action as chloroform, although there is no prospect of its becoming less likely to evaporate or burn; and we shall expect that its use as an anæsthetic will rather be increased than diminished in civil life, by the observations of those who are now watching its *modus operandi* in the military hospitals and fields of this country.

It is the *overdose* of chloroform, or its too long continuance, that, in Mr. Lister's opinion, is the most frequent cause of death. In this he is on the side of the majority of those who have studied the vital question both as to ether and chloroform; and touches at once upon the leading practical point of the whole inquiry. Stertor and obstructed respiration

are the alarming signs which the surgeon must attend to with the greatest care.

"The most convenient test of the patient being prepared for undergoing the operation is presented by the eye; not in the size of the pupil, which is inconstant in its indications, but in what is commonly spoken of as insensibility of the conjunctiva; though in truth it has no relation to sensation, which is abolished considerably earlier; but when unconscious winking no longer occurs, on the eyeball being touched with the tip of the finger, we have a good criterion of the suspension of reflex action in the body generally. At this period the pulse is about in a normal condition, and the respiration is usually either natural or very slightly stertorous, though persons with a tendency to swoon may do so almost from the commencement of inhalation. But if the administration of the chloroform be further persisted in, strongly stertorous breathing will soon be induced, and will become aggravated until it passes into complete obstruction to the entrance of air into the chest, though the respiratory movements of the thoracic walls still continue. Occasionally, however, the premonitory stertor is deficient, and the breathing more or less suddenly obstructed. This is a point of great importance; for, without close attention, it may escape notice, when the patient will be placed in imminent peril. For, though the respiration may be resumed spontaneously, this cannot be relied on, and it would seem that when chloroform is given in an overdose, the cardiac ganglia are apt to become enfeebled; and, on this account, asphyxia produces more rapidly fatal effects than under ordinary circumstances. But if the obstructed state of the breathing is noticed as soon as it occurs, and the cloth is immediately removed from the face, and the tip of the tongue seized with a pair of artery forceps and drawn firmly forwards, the respiration at once proceeds with perfect freedom, the incipient lividity of the face is dispelled, and all is well." (pp. 100–1.)

Prof. Lister is "anxious to direct particular attention to the drawing out of the tongue, because I am satisfied that several lives have been sacrificed for want of it." The traction should be decided, however, or it may fail. We have been very much impressed with the effect of this expedient on two different occasions—one of imminent death under chloroform, and the other of a similar state of things occurring to a patient who was supposed to be inhaling ether. In each case respiration had ceased for a moment, and the countenance had become rigid, when we threw the patient's head over the edge of the bed with one hand, and, with the other, seized the tongue and forcibly drew it out as far as possible. The air rushed in with a peculiar sound, the patient heaved a sigh, and again began to breathe. In the chloroform case there had been no mechanical interference with the respiration on the part of the assistant who held the folded napkin. In the ether case, the patient was deliberately suffocated through the carelessness of the assistant, the ether being inhaled from a cup-shaped sponge in a stiff and entirely close pasteboard cone, which was so firmly pressed upon the face as not to allow any air whatever to mingle with the anæsthetic. The hand, with its fingers, is the best instrument to employ for this traction of the tongue, because it is always ready and leaves no mark behind.

Our author gives a very interesting account of some investigations, made with great care upon himself, in regard to the nature of the stertor and the rationale of the traction of the tongue in stopping it, which satisfied him that the pulling out of the tongue does not act merely mechanically, but through the nervous system by a kind of reflex operation. He found that, besides the *palatine* snoring, there is another form

"which is the profound stertor essentially concerned with chloroform, depends on a cause seated further down the throat, and, for reasons to be given immediately, may be termed *laryngeal*. By digital examination of my own throat, I

found that the latter variety, and the complete obstruction into which it passes, could still be produced when the tongue was separated by a considerable interval from the back of the pharynx, while a free passage to the air existed onwards to the lips, which showed that the general belief that the obstruction depends on a 'falling back of the tongue' is erroneous. Also the epiglottis, instead of being folded back during the obstruction, as some have supposed, had its anterior edge directed forwards; and though it was thrown into vibrations when the stertor was strongest, it was evident that the cause of the sound was more deeply placed. I also found that, although firm traction upon the tongue abolished the obstruction and the stertor, it did not appear to produce the slightest change in the position of the base of the tongue; nor did it move the os hyoides upon the thyroid cartilage, as examined from without. Hence I was led to conclude that the beneficial effect of this procedure could not be explained mechanically, but must be developed in a reflex manner through the medium of the nervous system." (p. 102.)

He goes on to describe his observations on his own vocal apparatus with the laryngoscope. He then ascertained that

"The true laryngeal stertor results from the vibration of the portions of mucous membrane surmounting the apices of the arytenoid cartilages, *i. e.*, the posterior parts of the aryteno-epiglottidean folds (thick and pulpy in the dead body, but much more so when their vessels are full of blood), which are carried forwards to touch the base of the epiglottis during the stertorous breathing, and are placed in still closer apposition with it when the obstruction becomes complete. Having one hand at liberty, I was able to observe the effect of drawing forward the tongue under these circumstances, and saw that firm traction induced the obstructing portions of mucous membrane in contact with the epiglottis, to retire from it for about an eighth of an inch, so as to allow free passage for the air, while the epiglottis itself was not moved forwards in the slightest degree." (pp. 102–3.)

We are unable to give more space to this interesting paper except to note that he continues to urge a close watching of the respiration as all-important, and a disregard of the pulse as immaterial and likely to lead astray, and that he gives chloroform without hesitation in cases of heart disease; quoting, in support of these precepts, his own eight years' experience, and the authority of Mr. Syme, who has long observed and taught them without having lost a patient in about five thousand trials.

Plastic surgery is the subject of the article next in order, by Mr. Holmes Coote. Beginning with a short historical sketch of the rise of Taliacotian operations under the auspices of the famous professor of Bologna, Mr. Coote, occupies some seven pages with an instructive review of the general principles of plastic surgery. In the course of this he takes care to make the right acknowledgment to Dr. Marion Sims for "his energetic advocacy" of the use of metallic sutures, and for their consequent introduction into practice, especially in plastic operations. Rhinoplasty and cheiloplasty are fully discussed, including the restoration of the nose, hair-lip, lower lip and upper lip; also plastic operations on the ear, on the penis, the management of adherent and contracted vagina, and of cicatrices from burns and escharotics. The directions are ample and easily understood, with the assistance of illustrations in some instances, and contain many very useful hints for the guidance of inexperienced practitioners. His advice on the treatment of contracted cicatrices is especially worthy of recollection; it is that "no cutting instrument should be used." Again, "It may be laid down as a rule, almost without exception, *that a cicatrix should never be touched with a knife.*" He tells us that these operations have for some time past been discarded as useless at St. Bartholomew's and some other leading hos-

pitals of London. The best that can be done is, with gradual dilatation, extension and pressure, aided by the application of unguents, to stimulate the removal, by absorbent action, of the contracting tissue. The results of this treatment, he assures us, "are mostly satisfactory, and failure proceeds from want of patience, which substitutes forcible, and, as it were, spasmodic efforts, for persevering and unremitting gentleness."

Under the head of "Diseases of the Organs of Special Sense," Mr. James Hinton contributes a carefully prepared and practical chapter on "Diseases of the Ear," and Mr. Ure a well arranged one on "Diseases of the Nose," which is equally practical in character.

The next paper, on "Diseases of the Larynx," was the unfinished work of the late Mr. Henry Gray, whose sudden death prevented its final revision by the author. The disorders treated of are acute laryngitis, œdema of the glottis, erysipelatous laryngitis, diffuse inflammation of the cellular tissue of the larynx, syphilitic ulceration of the larynx, tumours of the larynx and trachea, hysterical affections of the larynx, spasm of the glottis, chronic laryngitis; the same with ulceration, and with affections of the laryngeal cartilages as the result of the inflammation. Mr. Gray's chapter is followed by a supplementary one on the "Laryngoscope," by Mr. A. S. Durham, which was rendered necessary by the fragmentary condition in which the notes on this subject were left by their lamented author. Mr. Durham's short account of this new instrument and its applications appears to be sufficient, historically and practically, to afford an efficient introduction to its use, and to show its really great value in the chronic disorders of the larynx and all the obscure affections of this organ. Mr. Durham is not very decided as to the general utility of the laryngoscope; but while ready to admit that it may remain in the hands of the few, he is yet convinced that it is destined to do much good to the many. In this respect it does not differ from the most of its predecessors in the march of improvement; and it will not be allowed to remain in obscurity merely on account of the ignorance and indolence which obstruct the progress of every new instrument where the necessary skill in manipulation and observation are only to be acquired by special and laborious exercise.

The next grand division is devoted to diseases of the organs of the circulation, and begins with a chapter by Mr. C. H. Moore, surgeon to Middlesex Hospital, on the "Diseases of the Absorbent System." Wounds of lymphatics, inflammation of lymphatics (angeioleucitis), inflammation of lymphatic glands (adenitis), hypertrophy and atrophy of glands, strumous disease of glands, lymphatics in syphilis, gonorrhœa, cancer, in indolent diseases—including ulceration, erysipelas and nævi, morbid contents of lymphatics, obstruction, obliteration and varicosity of lymphatics, excision of glands by operation—are severally discussed with care and ample fulness where they are not considered in other parts of the work. Strumous, syphilitic, gonorrhœal, and cancerous disease of the glands, for instance, are but slightly touched upon, as they are sufficiently studied in the articles on their several forms of general disorder. Other special affections of the lymphatic system receive a close practical consideration in regard to their pathology and local and general treatment.

Next in order comes the section on "Diseases of the Veins," by Mr. G. W. Callender, Assistant-Surgeon to St. Bartholomew's Hospital. The first topic is adhesive phlebitis, or inflammation of the lining membrane of the veins, which Mr. Callender agrees with the more recent pathologists in regarding as of "more than doubtful occurrence." He compares the views

of John Hunter, Meckel, Gendrin, and others, with those of Guthrie, Travers, Lee, and others, in opposition to them; and, after referring to the experimental demonstration by Lee of the fallacy of Gendrin's experiments as to plastic deposits in irritated veins when really deprived of blood, the author shows conclusively, by a repetition and extension of Mr. Lee's experiments, that in the lower animals, at least, the internal coat does not inflame when irritated; and that the lymph, when present, finds its way into the vein from without, and is not exuded from or through the lining membrane.

"From these considerations," he says, in conclusion, "it is manifest that adhesive phlebitis has been very variously described and accounted for, and that its occurrence has been denied by some pathologists. There can be no doubt but that veins are repaired without its aid; and experiments upon animals, taken for what they are worth, show that these vessels do not inflame when irritated. Absence of vessels from their lining membrane points, one would think, a reason for this immunity. A tissue thus circumstanced may eventually be involved when adjacent parts are affected, but it does not originate disease. As the barrier between tissues, often inflamed on the one hand, and the blood-stream on the other, it would obviously discharge an important function did it prevent lymph from being effused on the internal surface of the vein. For, although this lymph might be swept away without producing any local effect, it could not be mingled with the blood without risk of spoiling that fluid, or of causing secondary mischief by becoming entangled in and so obstructing the capillary vessels." (p. 291.)

Before going on to the description of suppurative phlebitis or diffuse inflammation of the veins, a very interesting account is given of a condition which until recently has been too often confounded with inflammatory action—coagulation of blood within the veins, *embolism*, or *thromballosis*, as Mr. Callender prefers to name it. The nature, causes, and consequences, as well as the diagnosis and treatment, of this peculiar disorder of the circulation, are very carefully explained and illustrated in the course of about ten pages, which are well worthy of the reader's attention.

Suppurative phlebitis is regarded by Mr. Callender as "in fact nothing more than a diffused phlegmonous inflammation," which "follows the course of veins which, acting as conductors, favour its rapid extension in the direction of least resistance; and hence, as a rule, the disease passes from the small to the larger vessels, since the cellular surroundings of the latter offer the easier route for its advance." We cannot follow him in support of this position, which we believe to be the true one, and well sustained, or in the excellent account of the disease and its treatment, and the distinction to be made between it and clot-obstruction, or thromballosis.

The next most important topic of the paper is phlebectasis or varicose veins. He calls attention to the fact, known to hospital surgeons and especially noted by recent continental writers but overlooked by Boyer and others, that the seat of varicose disease is as often in the deep veins of the lower extremities as in the trunk of the saphena, or in that of any of the superficial veins, and that it is just as likely to commence in the one set as in the other.

The management of varices in the early stage, either slightly involving the surface vessels, or being limited to the deep ones, is not difficult, and admits of permanent benefit, but the disorder is incurable if of long standing, although capable of material palliation. From all the measures resorted to for the purpose of obliteration, we are justly told—

"It is quite certain that only a temporary benefit is obtained; for after one mass of varices has been removed, the anastomosing veins around soon acquire a varicose condition, and the disease is perpetuated. In deciding upon performing any one of the many operations open to choose from, it must be the relief, not the cure of the varix which is anticipated; and no doubt there are cases, yet not so many as some would have us to believe, in which the pain of the varix, the impossibility of healing a large ulcer, the unfitting of a patient for his every day work, justify the operation for the temporary benefit." (p. 318.)

We have long since given up the hope of securing more than a temporary relief, of varying amount and duration, by these operations, and hence accord entirely with this rather discouraging view of an expedient which is too recklessly resorted to by young operators. We agree also with Mr. Callender in the opinion that the danger of these operations on varicose veins, especially with the caustic, the pin, or the metallic suture, is exaggerated, at least in regard to properly selected cases. The liability is not so much in the veins as in the tissues directly around them, and depends not on the local but the general condition of the patient. This general condition, however, from the very nature of the disease, is more or less likely to be sufficiently bad to render the radical operations dangerous, even when the dyscrasy may be very slightly manifested. This kind of interference, therefore, can only be justified in any case by the urgent necessity which serious inconvenience, suffering or positive disability may create; and, as a matter of course, it should be resorted to only under the best available sanitary influences and precautions.

The first of the essays on Diseases of the Arteries, gives us an excellent account of atheroma, and obstruction, including embolism, of the arteries, by Mr. C. H. Moore, Surgeon to the Middlesex Hospital, which is so full of interest and practical instruction, that we regret our inability to dwell upon it as a most complete exposé of its subjects. This is followed by an admirable clinical monograph on aneurism, by Mr. Holmes, the editor, assisted in certain parts by Mr. E. A. Hart, Surgeon to the West London Hospital.

Mr. Hart contributes the sections on the treatment of aneurism by digital pressure, by flexion, by manipulation, by galvano-puncture, by coagulating injections; also those on arterio-venous aneurism, cirsoid aneurism, and aneurism by anastomosis. Mr. Holmes gives us a very complete and well digested view of all the other branches of the subject, including the regional surgery and the operations on the various arteries. An unusually clear and practical exhibition of the pathology of aneurism is given in the introductory description of the various kinds of aneurism, and of their causes and progress. This is followed by a comprehensive and equally practical inquiry into the spontaneous cure, including the medical treatment; the symptoms and the diagnosis; and, lastly, the mechanical treatment of aneurism by the various methods.

A convenient feature of the introductory portion is a nomenclature table, which exhibits the terms adopted by Mr. Holmes, in parallel columns with those used by the French and English, as exemplified in Broca's *Treatise* and Erichsen's *Science and Art of Surgery*. This table is useful in presenting the author's concise and accurate anatomical definitions, while, by comparing his nomenclature with that in common use, it avoids the confusion and ambiguity which even the practical superiority of his specific terms would not justify in a clinical essay on a class of anatomical lesions which are intricate enough to puzzle the student under any circumstances.

The different topics, as treated by Messrs. Holmes and Hart, are full of

interest, historically as well as practically, and are abundantly illustrated with cases and statistics drawn from all sources, among which those of our countrymen, G. W. Norris and Stephen Smith, are most conspicuous. As we are obliged to pass on to other portions of the volume, we cannot give a better idea at once of the author's mode of applying practice to theory, and of his views in regard to the different methods of treatment, than by quoting from his general remarks in relation to the spontaneous cure of aneurism. After describing the different processes by which aneurisms have been known to become cured, he says:—

"The surgical treatment of aneurism, as far as it is successful and rational, is merely an artificial imitation of these processes. The treatment most in use in the present day, that by compression of the artery above the tumour, has no other aim than to imitate nature in the first of the processes described above, so as to slacken the circulation through the aneurism, and allow the blood in it an opportunity of coagulation. The Hunterian operation has essentially the same object, and, although it accomplishes it in a somewhat different way, and by obliterating a portion of the artery above the tumour, puts a more decided, but at the same time more temporary check on the current of blood. The cure by flexion (Mr. Hart's method), aims at combining the first process with the second, in which the aneurism is compressed by the parts around it, and itself (perhaps) compresses the vessel. Mr. Fergusson's plan of manipulation, or crushing, is derived from observation of cases in which the natural cure was effected, or attempted, by the impaction of a clot in the artery leaving the sac. Brasdor's method, so far as it is justifiable at all in practice, *i. e.*, with the modifications hereafter to be described, is identical with this in its object, and rests upon the same pathological basis. Direct pressure appears to cure aneurism usually by displacing portions of the clot, and may, perhaps, sometimes act by setting up inflammation in the sack or parts around it, which leads to coagulation. Finally, the old method, by opening the sac and tying both ends of the artery, bears the strongest analogy to the cure by suppuration, and is, in fact, a kind of excision of the tumour."

"The methods of spontaneous cure have been dwelt upon at this length with the view of impressing upon the mind of the reader that all successful plans of treatment are successful from being imitations (whether designed or fortuitous) of these natural processes, in the hope that this fact may lead practitioners to a more careful study of the workings of nature in this particular, and the conditions under which she works. Such a study carried on by various observers, could hardly fail to be fruitful in results which would lead to the preservation of numerous lives that would be sacrificed to the idea that internal aneurism is a disease almost necessarily fatal. What else is it than the careful study of the natural process of cure that led Hunter to his brilliant and daring proposal of tying the artery away from the seat of the disease? What else led the Irish surgeons to see that compression, in order to imitate nature, need not suspend the circulation entirely, need not even act continuously; and thus to substitute for the intolerable torture inflicted by the old plan of compression, a treatment which, in ordinary cases, is harmless, and, in a few, absolutely painless? Let us remember how comparatively short a time it is since one of the most celebrated surgeons of his time (Pott, *Chir. Works*, vol. iii. p. 220), announced his preference for amputation over all other methods of treating popliteal aneurism. Let us not forget that one of our most justly valued living authors on this subject (Hodgson, *Dis. of Arteries*, p. 190), was so satisfied with the advance which had been made at the time he was then writing, as to express his opinion that 'the improvements that have been effected in the mode of applying the ligature to arteries, have brought the surgical treatment of aneurism to a degree of perfection which leaves but little room for advancement.' Nor was such an appreciation of modern surgery at all exaggerated or unreasonable to those who looked at it as Mr. Hodgson did, by comparison with the mortality after the old operation. In our times surgery has made such rapid advances, that the mor-

tality, which under the system praised by Mr. Hodgson, must have amounted to a large percentage of those operated on, is now very much reduced by the invention of instrumental compression, and even this will, no doubt, soon be further reduced by the more frequent use of flexion and digital pressure. So may it be in medical practice. At the present day, it is hardly too much to say that a patient with internal aneurism is condemned to death as certainly as one with external aneurism used to be to amputation. A century hence we may hope our descendants will have as solid reason to boast of their improvement upon the science of Watson and Latham, as we have to congratulate ourselves on our advance upon the doctrines of Pott." (pp. 371—373.)

Under the head of organs of locomotion and innervation we have a short but sufficiently full article on affections of the muscular system, prepared by Mr. George Tatum, Surgeon to St. George's Hospital; a concise and comprehensive practical chapter on orthopædic surgery, illustrated with woodcuts and very useful, by Dr. Little; another, excellent as usual, and equally valuable, on diseases of the bones, by the editor, Mr. Holmes; a short but clear and comparatively full one on diseases of the joints, by Mr. A. A. Johnson, late Surgeon to the Hospital for Sick Children; a careful summary on excision of bones and joints, by Mr. Holmes; an interesting paper on diseases of the spine, including the various attendant and consecutive abscesses, by Mr. A. Shaw, Surgeon to Middlesex Hospital; and a brief but characteristic and able review of diseases arising from injury or other lesion of the nerves, by Dr. Brown-Séquard. The volume terminates with an interesting essay on diseases of the tongue, by Mr. Holmes Coote.

Each of these papers presents more or less evidence of careful study as well as practical familiarity with its subject; all are well brought up in the observations of the day, and are enriched throughout with illustrative cases. The article on orthopædic surgery is particularly interesting in its pathology and in the simplicity and practical good sense of its various directions, which are, by the by, especially authoritative as coming from one of the first of British orthopædists. In the essay on diseases of the bones, Mr. Holmes treats at length of simple inflammation and its consequences; ostitis, diffuse periostitis, osteomyelitis, chronic abscess, caries and necrosis; constitutional disorders, such as scrofula, syphilis, rheumatic and gouty affections, mollities ossium, cancer, pulsatile tumours, and cancerous ulceration; non-malignant tumours, enchondroma, exostosis, diffused bony or innocent ostoid tumours, serous and sanguinous cystic tumours, fibrous and fibro-cystic tumours and entozoa; hypertrophy and atrophy; and spontaneous fracture.

Among these topics diffuse periostitis, osteomyelitis, chronic abscess, and scrofula in bone, appear to be most thoroughly considered by Mr. Holmes. The first two are well known to have attracted increasing attention for some time past; and the notices of them in this volume, as very painful and often dangerous disorders, will reward a careful study.

In his paper on the affections of the joints, Mr. Johnson treats first of diseases common to all the joints, and secondly of diseases of individual joints. In the first part the diseases of the synovial membranes are first considered, next those of the articular extremities of the bones, of the articular cartilages, and of other tissues in and around the joints; anchylosis; articular neuralgia; articular hysteria; wounds of joints. Part Second includes strumous disease of the hip; morbus coxæ senilis; neuralgia of the hip; diseases of the pubic and sacro-iliac joints; of the knee; of the bursæ of all the different articulations.

These various morbid conditions are particularly well described and explained, under the light of personal experience and of the most recent views

and observations; but the details of treatment, especially the mechanical portion of the treatment, are scarcely as full and precise as they might have been with advantage, and as they are generally found to be in the different papers of the series.

We have in the paper on excision of the joints a cautious but intelligent and liberal summary of the most important points connected with the question and mode of performing these formidable operations. For the history of excisions, Mr. Holmes refers in a very complimentary manner, to the excellent and elaborate monograph of our countryman, Dr. R. M. Hodges, of Boston, Mass., and quotes from its pages repeatedly in the course of his paper.

Starting with the admission that a large amount of success has attended the attempt to preserve limbs by the removal only of the diseased portions of the bone, and stating his acceptance of the general rule that a large or important joint ought not to be excised while any reasonable prospect exists of a cure without operation, he thinks that a surgeon may very reasonably propose to cut short the disease by removing smaller bones, externally diseased, and easily removable, "while yet he may allow that cure is not hopeless," under favourable circumstances. He has often noted excellent results from the excision of bones of the tarsus and metatarsus, which proved the superiority of such treatment to that of waiting for a cure, especially in children, whose restlessness renders confinement less likely to be borne. He does not advocate such operations in the hand and wrist, on account of the danger to the tendons in operations, and consequent loss of motion, which would not be likely to occur from the ordinary inflammation. The question between excision and amputation is far more frequently perplexing to the surgeon, in Mr. Holmes' opinion, than that between excision and the expectant treatment, except, perhaps, in cases of disease of the hip-joint. On this latter question he presents a careful summary of the general indications for one operation or the other, under four heads, as follows: 1, the situation and function of the bone or joint to be excised; 2, the state of the patient as to general health, constitutional affection, and age; 3, the nature and extent of the disease; 4, various extraneous circumstances. These general indications for a choice of operation are followed by some general observations on the operations themselves, and then by the account of excisions in particular.

The paper of Dr. Brown-Séquard will attract attention as a condensed and lucid exposition of a very important series of morbid phenomena, by one who is probably more competent to discuss them than any other living writer—the "*remote, indirect,* or *reflex*" effects of irritation of nerves. It is particularly interesting to us at the present time, when illustrative cases are accumulating in our military hospitals, and present the largest field of observation. He reminds us that—

"Hardly is there any affection that cannot be considered as having sometimes been produced by a reflex action, the cause of which is an injury, a disease, or at least an irritation of a nerve. If, instead of confining myself to the lesions of trunks and branches of nerves, I intended to describe the effects of irritation of the ramifications of nerves in the skin or in the mucous membranes, I could easily prove that most of the inflammations of the various thoracic or abdominal viscera take place through a reflex action, the starting point of which is some irritation, by cold, of peripheric, sensitive, or centripetal nerve-fibres. I will not say more here about this influence of cold, as my purpose, as already stated, is to give an outline of the reflex effects of injuries or diseases of other parts of nerves than the network of their terminal ramifications.

"Of the various reflex effects of irritation of centripetal nerves, the following are the principal, of which I propose to speak successively: *epilepsy, tetanus, hysteria, chorea*, and other *convulsive affections, paralysis agitans, paralysis* of various kinds (*hemiplegia, local paralysis*, &c.), *amaurosis, anæsthesia, insanity, delirium, coma, neuralgia*, and other *painful affections, inflammation, atrophy, and other morbid alterations of nutrition and secretion.* After having mentioned clear and positive facts, showing that all these affections may be caused by an injury to, or a disease of, a nerve, I will briefly give the rules concerning the diagnosis and treatment of injuries and diseases of nerves. This essay will, therefore, consist of two parts; the first, relating to facts showing the reflex effects of irritation of centripetal nerves; the second, the principal features and rules of diagnosis, and treatment of diseases and injuries of branches and trunks of nerves." (p. 877.)

A very large number of curious facts are cited from various authorities in illustration and support of the views of reflex action described in the first part. In the second part, an outline of the means of diagnosis and the rules of treatment is given in a very few words, but quite sufficiently for practical purposes.

The cases occurring among our wounded soldiers of lesion of the nerves, especially from gunshot wounds, are already so numerous that we hope to see these postulates of Brown-Séquard thoroughly tested, if not confirmed, by the experience of the war, and should therefore be glad to see his important chapter separately and widely circulated in the United States.

We are unable to accompany our authors any further in their interesting essays, and are obliged to leave them and the remainder of their volume without further discussion of its very useful matter. We cannot pretend to present more than a very superficial glimpse of its character and actual contents. There is so much that will attract the surgical student and practitioner, and especially the hospital surgeon, that there can be no fear of the entire success of the "system" in the hands of every practical reader; and we sincerely trust that a sufficient number of copies may be brought into this country to reach some portion of the crowds of really able men, whom our military service is rapidly developing into veterans, expert in the management of the most important forms of surgical disease and injury. With such opportunities and such an example and monitor before them, in the work of men not older and perhaps less experienced than themselves, we may hope for a material advance in the surgical teaching of this country. We shall certainly look for still greater strides than have yet been taken in the actual practice of surgery, notwithstanding all that has been done for the progress of the art and science within the last half century on both sides of the Atlantic.

E. H.

BIBLIOGRAPHICAL NOTICES.

ART. XVIII.—*Obstetrics: The Science and the Art.* By CHARLES D. MEIGS, M. D., etc. etc. Fourth Edition, revised. With one hundred and twenty-nine illustrations. 8vo. pp. 730. Philadelphia, 1863. Blanchard & Lea.

THE present edition of Dr. Meigs' well-known treatise on obstetrics exhibits, throughout every chapter and section, the marks of the careful revision to which the work has been subjected by the author, and the very decided improvement it has undergone by reason, as well of omissions from the text as of additions to it. The work, notwithstanding its blemishes, which, though prominent, are but few in number, and far outnumbered by its unquestioned excellencies, forms, beyond doubt, one of our very best treatises on the science and the art of midwifery, whether regarded in the character of a guide for the student, or as a counsellor in the hour of need to the actively engaged practitioner. In respect to everything embraced within the scope of obstetrical practice, in the strict sense of the term, we know of no work from which more sound, clear and fuller instruction is to be derived than from the one before us.

We have no intention to enter into a formal criticism of the treatise. Its general scope and peculiar characteristics have, by this time, become pretty well known to the medical profession, in this country at least, of whom the almost unanimous approval has been conceded to the work as an exponent of the science and the art of obstetrics. All, therefore, that would seem to be called for, is a brief notice of the additions and improvements by which this fourth edition is distinguished from those which preceded. We shall merely refer to one or two points in the teachings of the author to which our attention has been attracted, as well from their actual importance and the weight which must necessarily be attached by the junior members of the profession to the views held in respect to them by one having the authority of Dr. Meigs as an expounder and practitioner of obstetrics.

In respect to the use of anæsthetics in midwifery, Dr. Meigs expresses his opposition as strongly in the present as he had in the former editions of his treatise. Notwithstanding he is willing to admit that there may occur some instances in which the parturient woman will be benefited by the use of ether employed as an anæsthetic, he contends that such instances must be extremely rare; while, on the other hand, the mischiefs, he contends, arising from the lavish and indiscriminate employment of anæsthetic agents, so strongly tempting as it is, are many and of a very serious character.

In the general run of cases of natural and ordinary labour we feel well persuaded that the resort to any anæsthetic merely to get rid of pain is entirely unjustifiable. In many cases, however, of labour where manual or instrumental interference is demanded, or in cases in which there is an abnormal amount of pain present, or when the labour is rendered protracted from a rigid condition of the os uteri, vagina, or perineum; as well, also, in cases of puerperal eclampsia unattended with cerebral congestion, and in other contingencies occurring during labour, which it is not necessary to here enumerate, we have the concurrent testimony of the most distinguished and authoritative obstetricians, that the employment of anæsthetics, especially pure sulphuric ether, will be productive of highly beneficial effects, and when conducted with a due amount of caution is attended with but slight danger.

The section devoted to the consideration of placenta prævia has been entirely recast in the present edition. The one leading indication laid down by Dr. Meigs in all cases of placental presentation is, as soon as the os uteri has be-

come sufficiently dilatable, to turn the child and deliver by the feet. The views of Drs. Radford and Simpson in respect to the treatment of placenta prævia, the arguments advanced by them in its support, and their experience in proof of its superior efficacy, receive not the slightest favour at the hands of Dr. Meigs.

"Let no man," the latter remarks, "suppose me to be so bold, not to say so impudent, as to call in question the perfect good faith with which Messrs. Radford, Simpson, and others, have stated their experience; it will ever be far from me to do so, though I can find in the mystery of their success no other solution than the errors of their observations, since I know—not believe—that a child deprived for many consecutive hours of all its sources of aëration must, of necessity die, and since I know equally well that when the os is not very greatly dilated and practicable for speedy delivery no man can, or will ever be able to detach an unassailable implanted placenta—unassailable, I say, because it lies far beyond his finger points. There ought to be a public recantation made of so considerable and so mischievous an error—an error that assuredly will not long withstand the light of the nineteenth century."

We would recommend to the young practitioner a careful study of the entire section devoted to the consideration of placenta prævia and its treatment. It will be found particularly instructive. The views of Dr. Meigs will, we believe, be endorsed by the great majority of well-instructed and experienced obstetricians.

Whilst pointing out the very serious consequences which usually result from the occurrence of smallpox during pregnancy, especially towards its latter period, Dr. Meigs urges upon his readers not only the immense importance of sedulously guarding the pregnant female from exposure to the contagion of variola, but of abstaining under every and all circumstances from subjecting her to vaccination.

"The shocking spectacles of distress that I have witnessed from the vaccination of pregnant females have so impressed my mind," says Dr. Meigs, "with the enormity of the imprudence, that nothing, I think, could tempt me to commit it myself. The most furious phlebitis, which is endangitis, and which becomes pyæmic fever, is one of the consequences likely to result from every true or spurious vaccination of a pregnant female. I am firmly convinced that it is far better for the physician, during an epidemic of smallpox, to leave his pregnant patient to the chance of a natural infection, than to certainly bring her within the range of its virulent power by a vaccine inoculation, which is but a variolous inoculation modified by the generical force of an inferior zoological genus. If I venture to put forth such opinions as the above, it is hardly incumbent upon me further to protest against the temerity of those who, during the existence of a smallpox epidemic, recommend, and even proffer, what is called *revaccination* to those who, having been already vaccinated, might be held to be protected; I mean to pregnant women. I have seen pregnant women very nigh to term, unnecessarily revaccinated, with consequences so terrific that I think I would not, for a thousand golden crowns, either vaccinate or revaccinate any woman knowing her to be pregnant."

We candidly confess that the foregoing extract embraces statements which to us are as novel as they are adverse to all our experience. We have had frequent occasion to vaccinate females during pregnancy, and still more frequent occasion to revaccinate such individuals, but in no instance have we known any bad symptom or the slightest evil consequence follow the operation. We should not, certainly, make choice of the period of pregnancy to either vaccinate or revaccinate our female patients; but in any instance where there was imminent danger of a pregnant woman being attacked by smallpox, in consequence especially of its prevalence as an epidemic in her immediate neighbourhood, we should consider ourselves warranted in securing to her without delay the protection afforded by the lesser evil, vaccination—if it can, indeed, be considered in any sense an evil—against the much to be dreaded because often deadly effects of the variolous poison. Nay, we should consider ourselves derelict in the duty we owed to our pregnant patient if we did not, under the circumstances referred to, urge her to submit to vaccination, even though in early life it had been already performed in her case.

The curious argument by which Dr. Meigs attempts to sustain his opposition to vaccination during pregnancy, will hold equally good against the safety of vaccination under many other conditions. Thus, if the argument be at all valid, it should deter us from resorting to vaccination in the early stages of life, and in the midst of those severe epidemics it has been our ill fortune more than once to witness, when even those are no longer safe who, at other times, were found proof against infection, though they had been exposed fully to the action of the variolous poison.

The peculiar views advanced many years ago by Dr. Meigs in respect to the pathology and treatment of what he denominates "child-bed fever," are reiterated in the volume before us, unmodified in the slightest degree in any of their features by the vast body of facts in elucidation of the subject that has of late years been accumulated by medical observers everywhere. These facts are as completely ignored by our author as though they had no existence.

A correct scientific account of the so-called puerperal, or child-bed fever, is still to be written. Whether we have as yet in our possession all the materials requisite for the preparation of such an account may, with good reason, be doubted. But upon a careful collation and analysis of all the recently recorded facts, observations and researches directly bearing upon the subject, every unprejudiced inquirer will be obliged, we think, to admit that, under the term "puerperal fever," meaning thereby to indicate a single special fever incident to the puerperal state, simply varying in intensity in different cases and in its different visitations, there has been in fact embraced various morbid conditions resulting from very different causes, attended by very different phenomena, pursuing a very different march, presenting very distinct pathological lesions, and requiring very dissimilar courses of treatment. And while it is found that the so-called puerperal or child-bed fever is neither a single nor specific disease, it will as clearly appear that the several morbid conditions which have thus been named and classed, are not confined to the puerperal period, but may occur to woman at any period of her life, and in the male equally as the female.

Dr. Meigs will find few among his contemporaries in the profession, either at home or abroad, willing to endorse his one-sided and exclusive teachings on the subject of puerperal fever, or the treatment to which he believes his convictions as to the true pathology of the disease necessarily lead. They will soon become —they are even so now—to a great extent exclusively his own.

D. F. C.

ART. XIX.—*Bulletin of the New York Academy of Medicine, from January, 1860, to October*, 1862. *Instituted* 1847. Vol. I., 8vo. pp. 588, exclusive of an Appendix of 6 pages. Printed for the Academy, New York, 1862.

THE official report, presented in the volume before us, of the proceedings of the New York Academy of Medicine for the last three years, proves very clearly the active working character of that institution. Besides this Bulletin, the Academy publish also from time to time a volume of Transactions, the contents of which are distinct from those contained in the Bulletin.

The many valuable communications on medical subjects, most generally of the deepest interest, read before the Academy by its members, and the animated discussions to which they almost invariably give rise, cannot fail to render its sessions always in an eminent degree instructive.

It is the free interchange of experience among physicians daily engaged in the study of disease, in all its varied forms, amid fields peculiarly adapted for the acquisition of medical knowledge and skill, and in the careful comparison of the deductions obtained by each from their individual observations, that correct views are to be acquired in respect to the nature of the several morbid conditions to which the human organism is liable—the phenomena by which the presence of these conditions, respectively, is indicated—the circumstances under which

they are most liable to occur, and the treatment best adapted to conduct them to a favourable termination.

The closest attention to the papers and discussions elicited at the meetings of the best conducted medical association, it is very evident cannot supply the place of the knowledge to be derived from the study of approved professional writings; such attention is to be ranked, nevertheless, among the best exponents of the nature and bearing of the truths set forth by the master minds of our profession, whether past or present, and of imparting these to the busy practitioners who, unfortunately, have little time, and some, we fear, less inclination for the study of medical works, whether new or old.

The entire contents of the volume before us are both interesting and instructive. As the more prominent among the communications and discussions set forth in it, we would enumerate those on diphtheria and croup, comprising an inquiry into the value of tracheotomy in the treatment of the latter; on the use of mechanical means in the treatment of uterine diseases; on tetanus; on the treatment of morbus coxarius; and of fractures of the femur; on morbid insanity in relation to criminal acts; on the use of anæsthetics in midwifery; on cretinism; on pelvic hæmatocele; on epilepsy; on inversion of the uterus; on vaginismus; on amputation of the cervix uteri, and on albuminuria.

The communications made to the Academy in reference to the subjects just enumerated are, in general, well drawn up, and in more than one of them hints are presented of a highly original and suggestive character. Several of the communications are, perhaps, too elaborate, if we view them as merely intended to form the foundation for a discussion, by drawing out the views and experience of the members of the Academy, in respect to the subjects set forth in them, while they are seldom sufficiently full to enable them to lay claim to the character of finished monographs. Nevertheless, nearly every communication made to the Academy appears to have excited discussion, more or less animated and prolonged. This is to be ascribed, in great measure, to the very sensible arrangement of the Academy, by which the discussion of any given topic is not confined to a single session, nor prohibited from being revived at any subsequent period, should any member desire to express his views in relation thereto.

It is not our intention to present an analysis of the several papers which make up the contents of the volume before us, or to criticize the manner in which their respective subjects are treated, or the nature of the views set forth in each. All of these papers had been already some time before the public in another form, previously to their being gathered together in a volume; and, with the particular questions discussed in them, and with the nature of the conclusions arrived at by their authors, the medical public are sufficiently familiar. The Bulletin is nevertheless well worthy of a place in the library of every physician, by no one of whom can its pages be consulted without profit.

D. F. C.

ART. XX.—*Registration Reports to the Legislature of Vermont, comprising the Registry and Returns of Births, Marriages, and Deaths, in the State, for the Years* 1857, 1858, 1859, *respectively.* Prepared under the Direction of BENJAMIN W. DEAN, Secretary of State. 8vo. pp. 118, 116, 119.

THE vital statistics of a people have far higher uses than simply to minister to a spirit of mere curiosity, however laudable such curiosity may be; they are capable of being directed to the attainment of results, by which may be improved alike the comfort, the happiness, and the prosperity of every individual, even the humblest, in the community, the vital movement of which they present. Towards a full and correct appreciation of the means best adapted to secure to a people the highest amount of health, vigour, and longevity, and to insure their advancement in prosperity, civilization, and happiness, it is generally conceded, that a knowledge of the circumstances connected with the three important eras of existence—birth, marriage, and death—affords

a necessary basis, inasmuch as with these eras are most intimately connected the physical, moral, and civil condition of the human race. Even though the statistics be confined to a mere exposition of the comparative mortality of different communities, and of the different classes of which these communities are composed—arising from difference of sex or age, or from difference of occupation or pecuniary position—they become of sufficient importance to warrant all the labour and expense incident to their collection and registration. By the lights furnished by them, we may remark—following the train of thought, if not the exact phraseology of another—the governing powers and enlightened statesmen become better prepared to discharge their high and responsible duties to the public, by the more exact knowledge furnished them, of the physical and vital powers, the possessions, and the resources of their constituents. The judiciary are enabled to dispense more equal justice in the settlement of life annuities, reversions, entailments, dower, pensions, and similar questions, by being rendered more intimately acquainted with the laws which govern the probabilities of living—the probable duration of life—within a given jurisdiction. Those interested in life insurance, either as members of legalized organizations, or as policy holders—in which so large an amount of capital is now invested by our citizens of nearly every class—are benefited, by being furnished with a correct exhibit of the relation which the laws of mortality, in respect to any given place or community, create between the insurer and insured, and the relative interests of the two parties thence resulting. While the philanthropist and the sanitarian will be enabled to give more definitiveness and more efficiency to their labours, by knowing where, in what manner, and in which direction, they must direct their efforts, to obtain from them the good designed; a knowledge they can acquire only by an acquaintance with the laws which govern the issues of life and death, as developed by a sufficiently extended series of vital statistics.

In this country, the subject of vital statistics has only of late years attracted the attention of the State and municipal authorities; and only in a few of the States have any measures been taken to secure a full and accurate registration of the births, marriages, and deaths, which annually take place. Even the medical profession have not been as active in forwarding, by their aid and influence, this important movement, as would reasonably have been expected of them, from their presumed acquaintance with the benefits to result from it to the community at large, and the valuable materials it is calculated to furnish to every medical practitioner, in his study of the etiology and prophylaxis of disease.

Every year, however, the value of registration is becoming more evident, and the impediments which have heretofore stood in the way of the inauguration of a correct and efficient system of registration in most, at least, of our larger cities and towns, are rapidly disappearing.

The first object to be obtained by a system of registration, is to amass authentic facts; the legitimate deductions from these will follow afterwards. The greater the number of facts accumulated, and the more in detail they are given, the safer, more comprehensive, and conclusive, and, consequently, the more satisfactory and useful, it must be evident, will be the deductions to which they lead.

To take the most striking and familiar example of the beneficial working of a carefully collected and properly arranged series of vital statistics of any given community. When, by such a series, it shall be shown, that the common mortality, or that from any particular malady, exceeds in some one locality or neighbourhood, or some one class of citizens, whose pursuits and general habits of life are similar, that in other localities or classes of the community; a careful investigation of all the circumstances in which the sickly locality or neighbourhood, or class of citizens, differs from those in the enjoyment of superior health, will very generally furnish a clue to the nature of the causes by which their unhealthy condition is produced, and to the means best adapted for the abatement or entire extinction of such morbific agencies. This, which is a very important and comprehensible example of the good resulting from registration, as the basis of a system of vital statistics, is by no means the only one that could be adduced. It is adapted to work out other results, equally important and beneficial, and which could not be obtained excepting by it.

The several annual reports of the registration of births, marriages, and deaths which occurred in the State of Vermont, from 1857, when the law providing for such registration went first into operation, to 1859, inclusive, present a very fair exposition of the vital movement of the different portions of the State. The statistics presented in the three reports are well arranged, and although still deficient in completeness and fulness of detail, there is exhibited by each succeeding report evidence of a decided improvement in both respects.

It would be a pleasing and instructive task to examine in detail the leading facts, in each branch of statistics, developed by the reports before us, and compare them with those developed by the registration reports for other portions of the United States. To do this, however, in a satisfactory manner, would unreasonably swell the present notice; while with the isolated and imperfect data at present in our possession, it would scarcely warrant the amount of labour necessary for the accomplishment of the task. We can afford space sufficient only for the notice of a few leading particulars.

The number of births reported for the year 1857 was 6412; namely, 3283 males, 3071 females; 58 sex not stated. Of these children, 4164 of the parents were Americans, 1397 foreigners, and of 851, the parentage was unknown. Excess of births over deaths, 2900.

In 1858, 6477 births are reported: males, 3294; females, 3142. In 41 cases the sex is not stated. The parentage was American in 4359 cases; foreign in 1583; and unknown in 535. Excess of births over deaths, 2749.

In 1859, 6545 births were reported: males 3351; females, 3155; in 39 cases the sex is not given. The parentage was American in 4523 cases; foreign in 1599, and unknown in 423. Excess of births over deaths, 2689.

The number of plurality births which occurred throughout the State of Vermont, during 1857, was 92; 52 males and 40 females. One set of triplets is reported to have occurred in the month of September. The three children were all females. Two of them died, one on the seventh, and the other on the thirteenth day. The remaining child was living at the date of the report. In 1858, 148 cases of couplets are reported, and three sets of triplets. The children in the first of these latter were females—all still-born; in the second, there were one male and two females, all of which were living at the date of the report. In the third case, there was one male and two females; the male survived four days, and one of the females five days; the other female was alive at the time of the report. One case of triplets occurred this year among 2132 parturients. In 1859, the number of couplets was 128: 87 males, 41 females; of these, 78 males, 37 females were born alive. The twin cases were as one among every 100 parturients. The greater number of the plurality births occurred this year in the month of November.

By the census of 1857, there was in Vermont 1 birth during 1857 to every 48 persons, and by the registration report, one in every 50. Both calculations are evidently inaccurate.

October was the most fruitful month, and January the least so. During the winter months, there were 1435 births; during the spring, 1574; during the summer, 1686, and during the autumn 1717.

In 1858, December was the most fruitful, October the next, and February the least so. During the first quarter of the year there were 1421 births; during the second, 1578; during the third, 1691; and during the fourth, 1736.

The returns of this year show *one* birth among every 49 of the population.

In 1859, October was the most fruitful month, and January the least so.

The following are the births in the different quarters of the year, and the different seasons:—

First Quarter,	1454	Winter	1441
Second "	1646	Spring	1653
Third "	1715	Summer	1685
Fourth "	1700	Autumn	1736

One birth appears, from the returns of 1859, to have occurred in every 48 of the population. It is very probable, however, that only three-fourths of the

births are registered; in that case there would be one birth to 38 of the population.

In 1857, no illegitimate birth is reported. In 1858, there was one illegitimate birth among every 108 births. In 1859, one illegitimate birth is reported in every 121.

In 1857, 54 cases of still-born children are reported, namely, 26 males, 22 females, and 6 sex unknown. In 1858, 147 cases are reported; 71 males, 50 females; the sex of the remaining 26 not mentioned. In 1859, 167 cases are reported; 80 males, 64 females; and 23 of which the sex is not given.

In examining the mortuary tables embraced in the reports under consideration, we are struck with the number of deaths which they present from diseases of the brain and great nervous centres generally. Thus the deaths from *apoplexy*, in 1857, were 71; in 1858, 49; in 1859, 47—total, 167. From *paralysis*, the deaths were in 1857, 73; in 1858, 89; in 1859, 79—total, 241. From *cephalitis*, the deaths were in 1857, 51; in 1858, 62; in 1859, 42—total, 155. From *diseases of the brain*, in 1857, 61 deaths are reported; in 1858, 48; in 1859, 40—total, 149. From *convulsions*, 66 deaths are reported in 1857; in 1858, 56; in 1859, 49—total, 171. From *hydrocephalus*, the deaths were in 1857, 46; in 1858, 32; in 1859, 51—total, 129. From *epilepsy*, the deaths were in 1857, 8; in 1858, 26; in 1859, 24—total, 58. From *chorea*, six deaths were reported; two in each of the three years 1857, '58, '59. Thus giving, for the three years, a total of 1076 deaths from diseases of the nervous centres, in a population of about 355,000. Upon a more close analysis of the reports before us, there is no doubt but that the above total would be still further increased.

The diseases of the *respiratory organs* give for the three years a total of deaths, amounting to 3363; namely—*Pneumonia:* in 1857, 163; in 1858, 169; in 1859, 161—total, 493. *Diseases of lungs:* in 1857, 56; in 1858, 53; in 1859, 67—total, 176. *Abscess of lung:* in 1857, 2; in 1859, 1—total, 3. *Bronchitis:* in 1857, 4; in 1858, 12; in 1859, 6—total, 20. *Influenza:* in 1857, 25; in 1858, 3; in 1859, 4—total, 32. *Asthma:* in 1857, 5; in 1858, 3; in 1859, 1—total, 9. *Hæmoptysis:* in 1858, 2; in 1859, 5—total, 7. *Croup:* in 1857, 73; in 1858, 54; in 1852, 64—total, 191. *Hooping cough:* in 1857, 26; in 1858, 34; in 1859, 57—total, 117. *Pleurisy:* in 1857, 10; in 1858, 7; in 1859, 9—total, 26. *Hydrothorax:* in 1857, 9; in 1858, 8; in 1859, 15—total, 32. *Consumption:* in 1857, 785; in 1858, 738; in 1859, 734—total, 2257. Giving, as above stated, for three years, a total mortality from diseases of the respiratory organs of 3363, which is less, however, than what actually occurred.

The entire mortality from *fevers* during the three years amounted to 1244; namely—from *typhoid fever:* in 1857, 88; in 1858, 116; in 1859, 214—total, 418. From *typhus:* in 1857, 21; in 1858, 38; in 1859, 23—total, 82. *Scarlet:* in 1857, 123; in 1858, 275; in 1859, 263—total, 661. From all other fevers during the three years, 83 deaths are reported.

The entire number of deaths from *cancer* during the three years was 214: namely—in 1857, 73; in 1858, 63; in 1859, 78.

The deaths from *Dropsy* amounted to 293; namely—in 1857, 109; in 1858, 93; in 1859, 91.

The deaths from *Dysentery* amounted to 247; namely—in 1857, 71; in 1858, 97; in 1859, 79.

The deaths from *Measles* amounted to 59; namely—in 1857, 13; in 1858, 17; in 1859, 29.

The deaths from *Rheumatism* amounted to 40; namely—in 1857, 13; in 1858, 15; in 1859, 12.

The deaths from *Diseases of the heart* amounted to 393; namely—in 1857, 120; in 1858, 141; in 1859, 132.

The deaths reported as of the *puerperal state* amounted to 99; namely—in 1857, 26; in 1858, 39; in 1859, 34.

In 1858, 14 deaths were reported from *diphtheria*, and in 1859, 60—total, 74.

From *delirium tremens and intemperance* 21 deaths are reported: 3 in 1857; 3 in 1858; 15 in 1859.

From *Erysipelas* 106 deaths are reported: 26 in 1857; 40 in 1858; 40 in 1859.

Twenty-four cases of *Suicide* are reported: in 1857, 9; in 1858, 4; in 1859, 11.

To *old age* 756 cases of death are referred: 339 in 1857; 232 in 1858; 215 in 1859. The patients were in the greater number of cases over eighty years of age.

We have referred to the foregoing items in the mortuary registers recorded in the reports before us from the fact, that if the registration has been accurately made, the amount of mortality from some, at least, of the diseases indicated, when compared with the population of Vermont, will be found unusually large.

Taking the reports for the three years, 1857, '58, '59, and comparing them with each other, it will be found that in Vermont, more than *one-seventh* of the deaths of which the ages are given, were of infants under *one year* of age; nearly *one-fourth* were of those under *three years*, and about *one-third* in children under *fifteen years of age*.

"It will be recollected," we quote the words of the report for 1857, "that the number of males exceeded the number of females born, hence an excess of male mortality in infancy might be expected; but the excess of male births was less than *three per cent.*, while the excess of male mortality under one year is *six* per cent. Between the ages of one and ten, also, more boys than girls die. In youth and adult age the heaviest mortality falls upon the weaker sex; while in old age, including all over sixty, the scale again turns against the males. This agrees with the facts developed by registration reports in other parts of the world. In, however, Massachusetts, Kentucky, South Carolina; in England, France, Austria, in fact *in every* State and Country, whose reports have been examined, with reference to this point, the excess of male mortality, at the extremes of life, more than counterbalances the excess of female mortality of middle life, giving universally, an excess of male mortality, when all ages are included. In Vermont, on the contrary, the excess of female mortality between the ages of ten and sixty, very much overbalances the excess of male mortality at all other ages, giving an absolute excess of female mortality when all ages are included. If this has been so for years past, it will readily account for the excess of male population, while the New England States generally possess an excess of female population. Of each 100 deaths, of those between the ages of ten and sixty, 38 were males, and 62 were females, making a difference of 24 per cent. against the females. Of each 100 deaths at all other ages, 52 were males, and 48 females, a difference of only 4 per cent. against the males. In this the difference in the numbers of the two sexes living is not taken into the account. When it is considered that the male population preponderates, the difference is found to be still greater against the females. While it is usually the fact that, during the term of *active* life the weaker sex are subject to a heavier mortality, yet it does not readily appear why the burden should be so much heavier in this State than elsewhere. During the development of womanhood, and through the procreative and climacteric periods, the female system is everywhere subject to increased liability to disease and death. In this State, this liability to disease and death, compared with that of males at the same age, is very wonderfully increased, particularly during the first period, that of development of womanhood. Of 1000 deaths of persons between the ages of 15 and 20 years, 654 were females, while only 346 were males, being a difference of nearly 31 per cent. against the females, and this notwithstanding there were actually more males than females living between those ages. Taking the living population into the account, it appears that one death occurred among 161 females, between 15 and 20 years of age, while only one among 318 males took place, being .6199 per cent. for females, and .3146 per cent. for males, or almost two females, exactly, to one male."

It appears, however, that this excess of female mortality is not equally distributed through the State, some of the counties showing an excess of male mortality.

In the second report the same excess in the mortality among females is noticed to have occurred. The deaths among the males were only one in 96, or 1.04 per cent., while among females it was one in every 81, or 1.23 per cent.

"Among children," it is remarked, "boys possess the least amount of vital stamina, and this is the more shown when the still-born children are taken into the account. There were 1,117 deaths of boys to every 1000 of girls. But during the period of development of womanhood, and through the procreative and climacteric periods, females seem to be by far the weaker sex. In old age there seems to be but little difference in the vital powers of the sexes, since this year, 1858, the balance is slightly against the females, while last year it was very slightly against the males. As remarked in the first report, in middle life females are everywhere subject to greater liability to disease and death than males; while in this State this liability compared with that of the males at the same age, is wonderfully increased, particularly during the period of development of womanhood. It completely overbalances the excess of male mortality at the extremes of life, producing an absolute excess of female mortality in this State notwithstanding the excess of male population. There is scarcely another State or Country in the world where the male mortality does not preponderate. *What causes are in operation in Vermont to produce this comparatively large female mortality?*"

The same astonishing fact is developed by the report for 1859. The deaths this year were one in 89 among the males, and one in 80 among females. In England, where the ages of the population are so nearly like our own, if 100 females die out of a given number of females in a given time, out of an equal number of males, 107 males die in the same time. In Vermont, if out of a certain number of females, 100 die in a given time; out of the same number of males only 88 die in the same time, taking the ratio as given by the returns for 1859. In England and America, we may remark, the ratio of the sexes at birth range from 104 to 109 boys to each 100 girls. In Vermont nearly the same ratio obtains, it being 106 boys to 100 girls.

In two of the counties, Essex and Orleans, the percentage of deaths is greater for males than for females; while in Addison county, the percentage is the same for both sexes.

In 1857 the greatest number of deaths occurred in October, the least in February. The number of deaths were great in March. June appears to be a healthy month, giving a less number of deaths than any other, excepting February.

Seven persons over 100 years of age died this year.

In 1858 the greatest number of deaths occurred within the first quarter of the year, whereas in 1857 the least number occurred then, and the greatest number in the last quarter. Combining the two years, we find that the greatest mortality took place during the middle six months, including the winter of 1857–8, nearly one-third of the deaths having occurred during the latter season. The winter, it is remarked, was not, perhaps, particularly unhealthy, but *only more so* than the other portions of the two years.

March appears to have been the most fatal month, and November the least so.

No case of death in any one at or over 100 years of age is recorded. Twelve deaths were returned in persons over 95.

September was the most destructive to life during 1859. January was the least fatal. In Vermont, March and November are equal in their range of mortality, next to these is September; August ranks the fifth among the months in reference to extent of mortality.

Twenty-one deaths are registered in 1859 as having occurred in persons at and over 95 years of age. The oldest of these were, one over 99 years, and one at 100; two turned of 100, and one at 107. D. F. C.

ART. XXI.—*The Principles and Practice of Obstetrics.* By GUNNING S. BEDFORD, A. M., M. D., *Professor of Obstetrics, the Diseases of Women and Children, and Clinical Obstetrics in the University of New York, etc. etc. Third edition, carefully revised and enlarged.* New York, 1863. 8vo. pp. 743. William Wood & Co.

THE volume before us claims to be a third edition, revised and enlarged, of Dr. Bedford's lectures on the principles and practice of obstetrics. After a very careful examination of it, however, we have not been able to detect any material difference between it and the preceding editions. It appears to us to be simply a reprint of those, with an additional chapter (Lecture xlvi.) on the pathology and treatment of phlegmasia dolens, of which disease in the previous editions no account had been given.

There seems to us to be, in this practice of announcing as a new edition each successive impression of a work, however small in number, taken from the same stereotype plates, an appearance of deception which is to be deprecated. Such a course may be required to bolster up the character of some work of doubtful value, by leading the public to believe that the demand for it has been greater than it actually was. No such deceit, we feel assured, is called for in the case of a professional treatise of the high character of the one before us. The success of such a work as that of Dr. Bedford, it seems to us, may be very confidently trusted to its own merits.

We feel no way inclined to modify in the slightest degree the verdict we gave in favour of these lectures of Dr. Bedford upon their first appearance in print. A more intimate acquaintance with them, acquired in a careful re-examination of the manner in which their author has handled the several questions embraced in his subject, has convinced us of their reliability as a guide to the study of midwifery in all its details, as well from the general accuracy as from the clearness and precision of their teachings.

We cannot, it is true, fully coincide with the lecturer in all his views, theoretical or practical; but the points upon which we differ from him are in the main open questions, in relation to which individual experience and convictions will necessarily lead to differences of opinion, until a more extended and decisive series of observations shall warrant one or other party to dogmatize in respect to them.

D. F. C.

ART. XXII.—*First Outlines of a Dictionary of the Solubility of Chemical Substances.* By FRANK H. STORER. Part I. Cambridge, Mass., Sever & Francis. 8vo. pp. 232.

MR. STORER is well known to chemists by the numerous original investigations which he has made and published, and which have been extensively reprinted in the German, English and French chemical journals. In the present work, he has undertaken to collect and classify all the facts scattered through the vast domain of chemical literature which bear upon the relations that exist between chemical substances and their solvents. The labour requisite for the conscientious performance of such a task has been necessarily immense, and will be fully appreciated by the chemical world.

Mr. Storer takes the term "solubility" in its extended sense, including the reactions of liquids upon solids, gases, and upon other liquids. He also embraces, as far as determined by observers, the influence which one substance in a state of solution exerts upon the subsequent solution of other substances in the same medium. The extent and variety of the information which he has collected on these points, will relieve the chemist from long and troublesome

searches through successive treatises. It will have another still more useful effect. Bringing together the various statements which have been made by different observers, any one consulting Mr. Storer's dictionary is enabled to ascertain whether these statements are concurrent, and therefore probably exact, or discordant, and therefore liable to doubt. In a word, the inquirer has placed before him the best information which has been published on each particular point, and is placed in a position either to conclude that the statements are reliable, or to perceive that he must determine for himself the question which occupies him. Another advantage of this dictionary consists in its bringing together a very complete synonymy, and in glancing over it, one is forcibly struck by the carelessness which has led chemists to use names already preoccupied, often to a most perplexing extent. For example; there are three different substances to which the name of Camphene has been affixed, all by French chemists, and one with the very similar name of Camphin. The word Benzoin belongs to three substances; and other instances might be cited. Mr. Storer's work might be advantageously consulted by investigators before adopting names for new substances, in order to assure themselves that the proposed word has the requisite novelty.

A dictionary of this sort is so necessary, that, as in many similar cases, when the work is done, we are surprised that the need was not perceived and supplied before. It has been a great mistake in chemical works that too much has been attempted, too wide a scope chosen, so that even with the most herculean efforts, completeness has not been attained. Books have been written, intended to embrace as far as possible, the sum of chemical knowledge, and the result has been, that the first portions have become antiquated before the work was completed. Gmelin's Chemistry, especially the Cavendish Edition, is a truly wonderful work, but it is still unfinished, while the first volume (Physical Chemistry), which appeared in 1848, is quite out of date. Poggendorff's Handwörterbuch has now reached the letter S, and already the first part has had to be completely re-written, to the extent of four large octavos, as a second edition of the first portion of a work still far from complete. And this, although the book is not the production of any single hand, but the result of the coöperation of many labourers in the field. It seems, therefore, desirable that chemical science should be subdivided into as many specialties as possible. In this direction we regard Mr. Storer's publication as a most valuable step. In the present state of the science we want monographs. Some such have been attempted. Rose's works on Analysis were admirable examples. Hoffmann published a monograph on Compound Ammonias, now unfortunately wholly out of print. Hartung-Schwartzkopf has given us a monograph on the organic alkaloids. Others might be cited, and we hope the number will be multiplied.

One pressing need at the present time is a really complete work on qualitative reactions. Rose has done much in this direction, but his book is now far behind the needs of the science of the day, and can only be considered as elementary. He has restricted himself to a limited number of reactions for each substance, selecting of course the most important, and has discussed them in 712 pages of rather large print. A thorough collection of all the known facts would fill two or three times as much space, and be of immense value. It should be subdivided into an organic and an inorganic portion, which might constitute separate works.

The first part of Mr. Storer's work before us contains 232 double column pages of close but clear type, and extends to the word "convolvulinol." We hope the rest of the work may speedily follow. M. C. L.

ART. XXIII.—*Reports of Institutions for the Insane in the British American Provinces:—*

1. *Of the Provincial Lunatic Asylum at Toronto, Canada West, for the years* 1853 *to* 1861, *inclusive.*
2. *Of the Provincial Lunatic Asylum of New Brunswick, at St. John, for the years* 1858 *to* 1861, *inclusive.*
3. *Of the Provincial Hospital for the Insane, near Halifax, Nova Scotia, for the years* 1858, 1860, *and* 1861.

THROUGH the polite attention of the superintendents of the public hospitals for the insane in the three British American Provinces, Canada, New Brunswick, and Nova Scotia, we are in possession of most of the annual reports which have issued from those several institutions. As our interest in the insane is not limited by national boundaries, as the superintendents mentioned are members of the American Association, and one of them at least, has contributed liberally to the original matter published in the American Journal of Insanity, as we feel bound especially to chronicle the progress of psychological science upon this continent, and as some of these reports contain matter of general interest, we proceed to pass them under a brief review.

On the 21st of January, 1841, the old gaol, near the centre of the city of Toronto, Canada West, was opened as a temporary receptacle for the insane, where they were not only furnished with the ordinary necessities of an "asylum," but were placed under curative treatment. In the course of a few years, two other buildings within the limits of the city were occupied for the same purpose, and the three were continued in operation until the establishment now known as the "Provincial Lunatic Asylum" was ready for occupation. This was on the 26th of January, 1850.

Patients admitted into the temporary hospitals	889
Discharged	554
Died	211
Transferred, date above-mentioned, to the new hospital . . .	112

It has been a principle from the beginning, at Toronto, to discharge no patient uncured. Hence, in the reports, "discharged" implies "cured." According to the above statistics, then, the proportion of cures at these temporary receptacles, all unsuited to their purpose as were the buildings, and unsupplied with the many resources for treatment considered necessary at the present day, was but a fraction less than *sixty-three per cent.*

The report very properly pronounces the figures unreliable, and, as evidence of their character, shows that, in one case, the patient *died in the hospital*, three years and five months after the time of first admission, but, in the course of that period, had been "discharged" (*cured*, of course) *five times;* and in another, the patient, in the course of a few days more than five and a half years, was "discharged" (cured) *seven times*, and then, after an absence of only twenty-three days, returned and remained, incurable, until death. "Figures may be used to prove anything," justly saith Dr. Workman, in one of the reports before us.

The Provincial Lunatic Asylum is in the western suburbs of Toronto, near the shore of Lake Ontario, upon which it fronts. It is a large, rectilinear building, six hundred feet in length, and consisting of a central edifice and two opposite wings. The original design included two additional wings, which have never been erected. The internal arrangements, made in conformity with that design, are such that the patients of either sex can be separated into but three classes—one in each story of the wing. This want of proper classification is, and must continue to be, so long as it exists, a great and glaring defect.

During the first year of the operations of the asylum, it was, if we mistake not—there being no statement upon the point in the reports—under the superintendence of Dr. Telfer. For one and a half years afterwards it was under

Dr. Scott, who, upon the 1st of July, 1853, was succeeded by Dr. Joseph Workman, the present incumbent, and the author of all the reports now under review.

We visited the establishment in the summer of 1852, and returned with impressions of cheerless grounds, large original expenditure in the building, enormous halls and corridors, bare walls, scarcity of furniture, incomplete classification, great defect in the means of moral treatment, and the laxity of an undisciplined asylum where we should have seen the regularity and order of a well appointed and vigorously managed hospital.

Dr. Workman, having more time than was at our command, found other imperfections, not the least of which was in the sewerage. Drains had been made beneath the building and a main sewer excavated, twenty-two feet distant from the outer walls; but, by a singular oversight, the two had never been connected. Hence, all the drainage of the building, from the time it was first occupied, had accumulated beneath the basement floor—a mass of filth reeking with noxious effluvia, which penetrated every apartment and seriously affected the health of the inmates. This evil was soon thoroughly corrected.

Evidently bringing to his task a natural taste for the specialty, sound common sense, practical ability, industry, energy of action, the spirit of improvement, and a disposition to make his labours contribute to the advancement of science, the present superintendent has not only become a well-known author upon insanity, but has gradually brought the institution under his charge into a condition in which it may fairly claim to rank among the best upon the continent. In the report for 1855–6, he says, "In point of architectural device, excellence of workmanship, and the general suitableness of its interior arrangements, the Toronto Asylum is inferior to none on this continent." Again, in the report for 1856–7, "An extended and minute examination of nearly all the best asylums in the United States, enables me to state that the sanitary condition of our Provincial Institution for the Insane is not inferior to that of any in America, and is much better than the majority. It is my belief that the chief cause of the comparatively vigorous health of the patients of our asylum, is to be found in the simplicity, and the superior nutritive properties of their diet, as contrasted with the more varied and less digestible fare with which the inmates of American Asylums are indulged." And finally, in the report for 1861: "The institution continues to receive a liberal gratuitous supply of the respectable newspapers of the Province. * * * Our library is pretty well stocked with books suitable to our people. * * * Our corridors and sitting-rooms present, I think, a better and more numerous collection of pictures than any other asylum I have visited. Our shrubberies, flower-beds, and fountains have, in summer, invested the asylum with a pleasing aspect. * * * Musical entertainments, picnics, moderate dancing and occasional holiday festivals combine to enliven, invigorate, or soothe the enfeebled sufferers who come here for renewal of mental and bodily health. It is now understood by candidates for discharge, that they have to attain a certain degree of fatness before they can be set at liberty, and that those who are bad eaters must remain long. Our annual bill for drugs is not formidable."

The reviewer thinks that the metamorphosis, in the latitude and longitude of the Toronto Asylum, must have been somewhat remarkable since the year 1852.

When Dr. Workman took charge of the asylum, there were 345 patients, of whom 187 were males and 158 females. In February, 1856, the number was 370, of whom 183 were males and 187 females, and in the report for that year the completion of the building is strongly urged. "The asylum is full—overcrowded—and cannot offer admittance to all who call for and require it; but it is a question of money against humanity; of 'public benevolence' against public apathy; of God's charity against man's avarice." It appears that this home-thrust produced its proper effects. There were, however, objections, in the minds of some persons, to the enlargement of the asylum, and, as a substitute for such enlargement, the University building in Toronto was opened as an "Auxiliary Female Asylum," at some period before the close of February, 1857. This was occupied by "quiet and harmless" patients.

In the summer of 1859, the calls for still further accommodations having

become imperative, the barracks at Fort Malden, near Amherstburg, were also converted into a "Branch Asylum," under the care of Dr. Fisher, formerly assistant physician to Dr. Workman; and in July, October, and December, three detachments of quiet, incurable patients, forming a total of 146, one-half of either sex, were transmitted to it from the main establishment.

On the 3d of August, 1861, the "Orillia Branch" was opened, and received 44 patients from the Asylum at Toronto.

The Asylum at Fort Malden was made independent of the parent institution on the 24th of September, 1861, and seven counties were assigned to it as the district from which it is to receive its patients. The number of patients, at the time of separation, was, males 108, females 91, total 199. The number remaining at the other three establishments, at the close of the year 1861, was—

	Men.	Women.	Total.
In the Chief Asylum, Toronto	173	175	348
In the University Branch	7	62	69
In the Orillia Branch	20	24	44
Total	200	261	461
Whole number, including Fort Malden . .	308	352	660

Hence the number of patients in asylum has doubled since July, 1853.

	Men.	Women.	Total.
Patients admitted from 1841 to 1861, inclusive .	1416	1217	2633
Discharged	790	625	1415
Died	.	.	701

For cause already mentioned, the number discharged cannot be relied upon as the number of cures. In the 8½ years of Dr. Workman's administration, the admission and discharges were as follows:—

	Men.	Women.	Total.
Admitted	612	639	1251
Discharged	322	303	625

This makes the cures (*discharges*) equal to 50 per cent.; but Dr. W. acknowledges that "a small percentage of deduction is to be made for unrecovered patients removed by their friends." What *is* a "*small* percentage?" Is it 1, or 5, or 10 per cent.? Why doesn't he say, directly, in his reports, "Cured —— so many?" That would be much more consistent with the general directness and plainness of speech which is a prominent characteristic of his writings. For ourselves, we think it very probable that his 50 per cent. is at least 8 per cent. higher than truth will warrant. If an institute which receives all classes of patients, without discrimination, can report even 40 per cent. of actual cures, it "does well, acts nobly."

In the first nine years of the existence of the asylum, the number of male patients exceeded that of females by more than 50 per cent.; but in the last 8½ years, the number of females admitted was greater by 27 than that of males.

"In a given aggregate of male and female patients," says the report for 1861, "it is found, here, that more single men and women than married men and women recover; not, however, because they are single, but because they are younger."

It appears that Dr. Workman has as little confidence as some others in many of the *causes* of insanity, as alleged by the friends or physicians of the patients; and thinks also, with others, that not unfrequently that which is considered the *cause* is rather the *effect* of the mental disorder. In the report for 1858, after quoting from his register a number of the influences to which insanity was attributed, he proceeds to make the following commentary:—

"Now, if any one of the preceding wide-spread agencies may be regarded as adequate to the overthrow of reason, how many lunatics would this Province contain? Intemperance alone would people fifty asylums as large as our present one. Jealous wives and husbands would probably fill thirty. Bad treatment of (by?) husbands would equal intemperance. Political excitement would people a mad-house in every county, and one of superior class and size in the

metropolis. Religious controversy would send in half the clergy of this Province, and large detachments of their congregations. Tobacco and slander would leave few in Canada at large. Excessive study, solar eclipses, love, inhalation of the laughing gas, and remorse of conscience, would probably make up but a small aggregate. In 651 cases of lunacy admitted by me into this Asylum, I have met with only one instance in which the last-named agency was alleged as the cause of the insanity, and the patient had not been very wicked.

"Religious excitement and religious despair both come in for their full share of censure, and yet we meet with few cases in which either can be regarded as purely casual. Those who are already half insane, or strongly predisposed to the malady, are very likely to rush into the former or to reason themselves into the latter.

"On the other hand, we cannot question the efficiency of such agencies as the following: Gestation; puerperal disorder; over lactation; fevers resulting in cerebral lesion; sun-stroke; intense cold to the head; injuries of the skull; apoplexy; epilepsy; parental intemperance; masturbation; scrofulous and syphilitic taint; defective diet, &c. &c."

The following remarks are taken from the report of 1860:—

"No (other) question is so frequently put to the physician of a lunatic asylum as that which calls upon him to state the most productive cause of insanity. Those who are most familiar with insanity find themselves the least able to reply to this question. The reader of one book, or the doctor of one patient, is sure to understand disease and its cure much better than the student of half a century."

The opinions expressed in the two extracts given below do not accord with those generally quoted from American reports. As our views upon the subjects have been fully exposed in former "notices," we shall withhold them here.

"A lunatic asylum is, in many respects, the best place for the treatment of the insane; but the transmission of every case of the malady to an institution of this character is neither necessary nor advisable. Under no consideration other than that of unavoidable necessity should any fellow-being be cast into a mad-house."[1] (*Report for* 1857.)

"It is very doubtful if the efficiency of early treatment has not, by many of the specialty, been much overrated. When, for example, we are told that 90 out of every 100 would recover if put under asylum treatment within the first month, we may be cautious in crediting the assertion. There are cases of insanity, and I fear the proportion is formidable, in which treatment cannot effect a cure, at whatever period it may be commenced. This is a fact which will readily be verified by many a disappointed asylum physician."—*Report for* 1861.

Lest, however, we may misrepresent our author, it may be stated that he acknowledges the importance of early treatment, and even says: "It is, indeed, to be deplored that in many instances insanity is allowed to root itself in the system before the friends of patients can resolve to place them in an asylum; and thus incalculable evil is done. * * * * It is very far from my desire to discourage early transmissions to the asylum; but it is my duty to admonish against the entertainment of expectations which actual facts do not warrant."

We will now turn our attention to such parts of the reports as relate to some of the forms of insanity.

"Reasoning mania, in many of its varieties, is a formidable type of mental disease; and under the august sanction of religious dogmatism it assumes, perhaps, its most obstinate and alarming form. Suicidal propensity is seldom absent in such cases.

"Among the religious (mania) cases admitted in the past year (1859) there have been found a number who accuse themselves of having committed 'the unpardonable sin,' and in consequence believe themselves doomed to inevitable perdition. If those who teach doctrines of this character were, by law, sen-

[1] Does not Dr. Workman perceive that the continued use of such words as "mad-house," "lunacy," "wards," &c., tends to perpetuate the prejudices and false notions which have hitherto been among the objections to the commitment of an insane person to a hospital?

tenced to serve a definite period in the Asylum, nursing the victims of their dogmas, and guarding them from self-destruction, it would, perhaps, tend to the removal of the evil. I have seen one patient whose case might well have taught discretion to a thousand. * * * * These patients require for their benefit the mental vacuity of a mad-house. They should be placed among those who cannot or will not argue with them."

The subjoined is an abridgment from the report for 1861:—

"The past year has been most fearful in the annals of this Asylum as regards the number of suicidal patients admitted. No less than 53 of the 204 have been certified to be suicidal. * * * * I think I am warranted in regarding this unwonted manifestation of insane propensity as an epidemic. * * * * The malady has presented itself under strongly marked religious complexion; yet it has differed from the sporadic suicidal insanity of other years, in the fact that it has shown no incidental partiality. It has neither known distinction of creed nor of nationality; and although the religious delirium or delusions associated with it may have found expression in diversified phraseology, yet the generic, underlying mental error has been the same in all. They all believed they had committed unpardonable sin."

But one death from suicide, in the course of the year, is reported.

Our readers are aware of the general belief that the paralysis peculiar to the insane is chiefly produced by intemperance and venereal excesses. In his report for 1859, Dr. Workman says:—

"In this Asylum 12 cases have terminated in death since I entered, and two were taken home by their friends shortly before death. All occurred in men, and only in three could I discover proofs of intemperance. Yet in these three does sound philosophy warrant the assertion that their known intemperance was the cause of the disease of the brain of which they died? If so, what produced the disease in the remaining nine?"

In the report for 1860 he says: "The experience of another year has tended to confirm my belief that, *in this country* at least, the disease presents itself almost exclusively in temperate men."

He alludes, in the report for 1859, to the opinion that *ramollissement* of the brain always accompanies the disease, and presents the following summary of the results of his own observations:—

"In the majority of subjects I have found softening, but greatly diversified as to extent and locality. In a few instances, instead of softening, I have found unequivocal hardening. The least inconstant fact has been serous effusion, within the ventricles and on the surface; and in two or three cases this was the only morbid result observed. Thickening and opacity of the membranes are generally met with, and lymphy deposits, of varying consistence, over the sulci of the convolutions, are not uncommon."

Those sections of the reports which relate to the care and the treatment of the patients demand a passing notice.

"It is my belief that insanity is never associated with perfect bodily health; in the majority of cases it is certainly dependent on physical debility. * * * Many patients come to this Asylum in a very reduced state, and not a few have been placed beyond the reach of curative means in consequence of the active and depressing therapeutic measures which have been adopted by their physicians. Blood-letting, purging, vomiting, salivation, blistering, cupping, setons, low diet, and the whole battery of medical destructives have been exhausted: and it is fortunate if the patient has fallen into the hands of only one of this class of psychologists. *The most promising cases are generally those for which least has been done.*

"Were generous diet, well-directed kindness, exemption from bodily restraints, moderate exercise, and in many cases a judicious allowance of wine or alcoholic beverages substituted for the present erroneous medical treatment, a very large proportion of those who are now sent to this Asylum would recover at home, and many who are rendered incurable for life might be saved from so melancholy a doom." (*Report for* 1857.)

"To live among the insane is but to be irresistibly constrained to pity and to love them; and when this bond is once established between the physician and

his confiding family, the task of governing becomes, so far as *they* are concerned, a labour of inconceivable pleasure. But the superintendent of an insane Asylum has other people to manage and govern besides his patients. * * * So long as the insane were regarded as malignant, blood-thirsty, treacherous, vindictive, and implacable, and their malady was ascribed to demoniac possession, they were indeed treated as the devil's children ought to be. But the devil has much less to do with the inmates of an insane hospital than with those outside who are called sane. I believe there is no asylum superintendent who would not rather undertake the government of five hundred lunatics than of fifty sane persons taken indiscriminately from society." (*Report for* 1858.)

"Kindness to the *insane* inmates of an asylum sometimes demands, of those in command, the execution of much that is considered very unkind to the *sane* attendants. Small faults must be promptly dealt with, otherwise great ones will spring from the overlooking of them. Even an ill-natured attendant may be kind to a good and obliging patient; it requires a vigilant oversight to secure, from the best tempered attendant, the like treatment of the malevolent and perverse." (*Report for* 1860.)

"Nothing (else) contributes so much to the improvement and cure of the male patients of this asylum, as the employment afforded by the farm." (*Report for* 1855.)

The pictures in the building have already been mentioned. "It is a gratifying fact," says the report for 1858, "that in the course of three years but two instances have occurred of wilful injury to these ornaments. In one the offence was committed by a male patient, in a fit of aberration; and in the other by a female, in a state of lucid termagancy, which probably had been her normal condition at home."

"Curing insanity is not all the good we can do in asylums; might I not say, it is a small part of the good? Fifty years ago lunatics recovered in asylums, notwithstanding that they were then subjected to treatment very different from that of the present day. It must not be to statistics that we shall appeal to prove the superiority of modern asylums and modern treatment. Its most worthy proofs must be sought for, I apprehend, rather among the incurable, than the curable, insane." (*Report for* 1861.)

A few passages connected with the mortality of the insane are worthy of reproduction.

"Chronic insanity terminates frequently in complicated or obscure forms of disease, to which it is very difficult to assign any definite nosological designation. The ultimate symptoms of the case may appear, to ordinary observers, clearly enough indicative of the final pathological state of the organs then most prominently affected; but to the physician who has observed the long series of morbid phenomena which have preceded and determined the closing scene, they are suggestive of associated facts imperfectly appreciated by others.

"Exhaustive diarrhœa, terminating, as it does so often, both chronic and acute insanity, may appear, in itself, a sufficient fatal agency; yet it is but the last, and the least interesting, of a long succession of morbid occurrences, which have passed in review under the daily observance of the asylum physician. It has, perhaps, been present again and again, during the progress of the case, as a symptomatic accompaniment of unyielding disease of the brain, to the relief of which nature probably sent it; and having accomplished its mission, it subsided, *apparently* controlled by the medical remedies employed to check it. It has now once more come to the rescue; but its weapons, like those of other members of the healing art, are double-edged—striking at the disease it kills the organ." (*Report for* 1859.)

"Disparity between the mortality of male and female lunatics is a well-known fact in asylum statistics. In a large aggregate, the mortality of male lunatics is to that of the other sex, probably as 4 to 3 * * * * Female insanity is, in a large proportion of cases, merely a reflex disturbance of the brain. Insanity in men much more extensively involves cerebral lesion; and their mortality is proportionably increased." (*Report for* 1860.)

Of the 42 deaths in 1861, no less than 21, or 50 per cent. of the whole, are attributed to pulmonary consumption. Dr. Workman shows that, in several of

the hospitals of the United States, only 20 per cent. of the deaths are reported as having been the result of that disease. He refuses to admit that phthisis is more prevalent among the insane of Canada than among the insane of the United States, asks whence arises the apparent difference? and says: "The reply is simple and satisfactory. Our Canadian diagnosis is based on *post-mortem* examination, whilst in the United States asylums, *post-mortem* examinations are not held, unless exceptionally.

"Had not examination *post-mortem* revealed to me destructive tuberculous disease, *in numerous instances it would not be known to have existed.* Of the 21 patients whose deaths I ascribe to this disease, *only three had both cough and expectoration, and only three or four others had any expectoration. All the rest died without these symptoms.*"

Several of the reports are enriched with the records of many autopsies.

In July, 1857, "a quantity of imported potatoes affected with the European rot were purchased for the use of the patients, and shortly afterwards several cases of severe dysentery and other formidable diseases of the digestive organs, evincing a marked typhoid type, occurred." The remaining potatoes having been buried, "the health of the patients speedily returned to its wonted state."

With two or three miscellaneous extracts we shall close this notice, already protracted beyond our customary limits. The first one is as applicable in some of our States as it is in Canada. It refers to the oath, legally required, that the insane person is "dangerous to be at large."

"Among the 'dangerous to be at large' lunatics sent from our gaols in 1860, was one paralytic in the lower extremities, and who, in the asylum, is as gentle as a child. * * * * Along with the above patient was brought another '*dangerous lunatic*,' who is certainly one of the most gentle creatures I have ever seen in this house. * * * * *How do the parties swearing manage the task? and how do the magistrates permit the oaths to be taken?*"

"An evil of inconceivable magnitude and distressing results in the working and present condition of this institution, has been the introduction into it of criminal lunatics. * * * It is an outrage against public benevolence, and an indignity to human affliction, to cast into the same house of refuge with the harmless, feeble, kind-hearted, and truthful victims of ordinary insanity, those moral monsters which nature seems sometimes to have formed for the purpose of teaching us the inestimable value of the constitution with which the species has been blessed; or, yet worse, those villains who affect insanity as a means of evading the just punishment of the most atrocious crimes." (*Report for* 1853–4.)

Another home-thrust, equally effective with one already mentioned. The criminal patients were soon afterwards removed to Kingston. The *hardiesse* with which the pen of the author of these reports grapples with evil is truly refreshing.

2. Before the year 1836, there was no receptacle exclusively devoted to the insane in the Province of New Brunswick. The pauper insane were sometimes confined in almshouses or gaols, and patients for whom restorative treatment was desired, were sent by their friends to foreign hospitals—generally to those in the United States. In the year mentioned, a building in the city of St. John was opened as a "Provisional Lunatic Asylum." It was chiefly intended for the indigent insane of the Province; and it received liberal grants from the public funds, towards its current expenses. After the lapse of about ten years, the necessity for enlarged accommodations having become urgent, an effort for the foundation and erection of a provincial hospital was successfully made. A farm of forty acres, on the west side of the harbor of St. John, was purchased, buildings erected thereupon, and the establishment opened for the reception of patients on the 12th of December, 1848.

The number of patients annually received at the provisional asylum varied from 29 to 73, the total for the thirteen years from 1836 to 1848, inclusive, being 652. The reports before us give no information in regard to the number of cures or deaths. Ninety patients remained in December, 1848, and these were transferred to the new hospital.

The edifice of the *Provincial Lunatic Asylum of New Brunswick* is constructed of brick. It consists of "a main centre building, and four corner buildings, three stories each, and four connecting wings, two stories, with a high two story erection, extending back from the centre, 80 by 26 feet. This back centre erection includes the washing department, in the basement, the kitchen, &c., on the first flat, and the chapel on the second flat."

In December, 1849, Dr. John Waddell was appointed superintendent. He still continues in the office, the duties of which he has performed with much ability and practical skill.

The number of patients annually admitted has varied from 48 to 108. The whole number, from the 12th of December, 1848, to the 31st of October, 1861, including the 90 transferred from the provisional asylum, is 1147.

Discharged, cured	462
Died	244
Remaining	168

In the report for 1858, it is stated that, of the cases discharged *recovered*, 8 were of delirium tremens.

The reports of Dr. Waddell are very brief, and, aside from statistics, confined almost exclusively to the material and financial departments of the institution. We gather, however, a few extracts of a more professional type.

"As a general rule, insanity depends upon an atonic condition of the system, and in many of these cases there is great excitement; and if treatment is based on the erroneous idea (as it sometimes is) that by lowering the system the excitement will cease, incalculable mischief may be done. Every step in such a course increases the violence of the symptoms, and, if persisted in, the patient will either sink from exhaustion in the acute stage, or, if he possess vital powers sufficient to resist the evil effect of such treatment, it is, in many cases, but to decline into a state of hopeless imbecility." (*Report for* 1859.)

"I am convinced that useful employment, especially in the open air, judiciously adapted to the strength, and in harmony with the feelings of self-respect, has exerted a powerful influence in promoting the health, the comfort, and the happiness of those under my charge.

"The institution continues to be the resort of all classes. I am not aware of there being any insane persons provided for in any other way in the Province, nor do I know of any dangerous or troublesome persons being at large. The care and treatment of the insane seem to be entirely accomplished by the institution.

"There seems to be no alarming increase of mental disease in the Province; none beyond what is natural with the ordinary increase of population. The people being thinly scattered over a large and rich territory, where every facility exists to procure the comforts of life without that strife and exhausting toil so common in older and more thickly peopled lands, are necessarily exempt from a large class of influences that tend to develop insanity. I may mention, too, what appears to be a fact, that the popular element of this Province is seldom seriously disturbed. Political revolutions, which seem to convulse other communities all around, produce but a very transitory effect here, and, while the land is productive of everything that is good for the sustenance of its inhabitants, when properly cultivated, it is a soil in which spiritualism, and all other such isms—so prolific of insanity—do not flourish." (*Report for* 1860.)

Yes, and that last remark would doubtless apply to Greenland or to Patagonia, as well as to New Brunswick. The reviewer is not an advocate of "spiritualism," but he has some love for scientific investigation. He would, therefore, like to ask whether the ordinary forms of the Protestant religion—"so prolific of insanity"—see the hospital reports for the proof of the fact—"flourish" in the soil of New Brunswick?

The reports contain nothing by which we are enabled to form an estimate, either actual or comparative, of the facilities or means for moral treatment possessed by the institution. It is stated that religious services are performed on the Sabbath, and that newspapers "are much valued by the patients."

3. In 1845, three commissioners from Nova Scotia visited many of the hospitals for the insane in the United States, for the purpose of making investigations and observations preliminary to the foundation of a similar institution in the aforesaid province. For several years afterwards no very active measures were taken for the prosecution of the enterprise; but private donations and legislative appropriations therefor were made from time to time, and at length a farm of 85 acres, "on the Dartmouth side of the harbor of Halifax, at a distance of about two miles from the city," was selected by Miss D. L. Dix, as an appropriate site, and purchased accordingly.

The plan adopted for the building is that of the United States Government Hospital for the Insane, near Washington, D. C. This plan has been described in our former notices of reports.

The corner-stone of the hospital was laid on the 8th of June, 1856. A part of one wing having been completed, the hospital was opened, under the charge of Dr. James R. DeWolf, and the first patient received on the 26th of December, 1858. The general statistics from that date to the 31st of December, 1861, are as follows:—

Patients admitted	193
Discharged	76
Remaining, at the close of 1861	117
Of the patients discharged, there were cured	37
Died	14

The whole wing was finished in 1861, but neither the central edifice nor the other wing has been begun. Meanwhile the superintendent, with overcrowded halls, is pleading for further accommodations.

"According to the census of 1861, there are, in Nova Scotia, 340 insane persons, or rather more than one in a thousand of the entire population. Of this number, 223, or nearly two-thirds of the whole, remain without the advantages of hospital care, many of them wandering about—even in this inclement season—others confined mercilessly, and all so situated as to demand our warmest sympathy." (*Report for* 1861.)

"A fair proportion of the wealthier classes continue to avail themselves of the hospital for the care and cure of their friends. The money hitherto sent abroad to maintain this class of patients in foreign institutions, is now expended within our own borders." (1861.)

Here is a case of the use of an anæsthetic for a novel purpose:—

"A young female patient who had not spoken for months, gradually desisted from eating, and it was with the greatest difficulty that her mouth could be opened. It was only under the relaxing influence of chloroform that the rigidity of the jaws could be overcome. The patient for upwards of three months swallowed no food voluntarily. Twice, daily, was the feeding pump resorted to. At last she was induced to drink a little, then a little more, then took soft food, and now eats heartily of the ordinary diet. She has grown quite fleshy of late, and is happily beginning to speak." (*Report for* 1860.)

We cull a few extracts in regard to moral treatment:—

"The industrious patients are encouraged by small gratuities; but it is not in our power to carry out this principle to the extent its importance deserves. It would be only just and fair to recompense the labour of quiet, industrious patients, either by periodical money payments, or by allowing their earnings to accumulate, and paying them the interest of this sum annually, should they become able to leave the hospital." (1861.)

"The restoration of the insane being the primary object of the institution, labour must be looked upon more in a curative than a pecuniary light. Hence we find it requisite, in some instances, to check the eagerness for continued laborious exertion which is exhibited by some patients, and so to apportion the work that all who engage in it may be benefited by what they do." (1860.)

"In order to carry out effectually the modern humane system of non-restraint, so ably advocated by Dr. Conolly, we have aimed from the first to engage the services of active, cheerful and trustworthy attendants, and have instructed them in their arduous and responsible duties. In one instance we combated

the determined self-injury of a patient who had a habit of beating his head with increasing violence against the wall. We fitted up, for this man, a "padded room," by means of which he has enjoyed a freedom of motion, and an amount of liberty, which could in no other way be accorded to him.

"Cases of extreme destructiveness occasionally arise, setting all ordinary care utterly at defiance. One such we had recently, when the constant presence, by day and by night, of one, generally two, and often three attendants, was insufficient to prevent the destruction of property and the serious disturbance of the other patients. The propensity was at last overcome by continued kindness, and by a determined refusal to sanction the application of any restraining apparatus." (1861.)

We do not perceive how the refusal to apply mechanical restraint assisted in overcoming the fury of the patient, unless he feigned his fury for the sole purpose of being placed under such restraint. Although we are in favour of reducing restraint to its wholesome minimum, and, as early as 1845 and 1846, did, as we believe, reduce it to a lower amount than had ever theretofore been attained on this side of the Atlantic, yet we must candidly avow our belief that the above case was badly treated. We think that less evil would have arisen to the patient himself, if he had been placed, alone, in a vacant room, with his hands securely and comfortably (for that can be done) confined by a strong camisole.

There are many patients who, if they were placed under the surveillance of *three* special attendants, would continue their violence (when otherwise it would have subsided) through irritation or anger, or from "spite," or, if from neither of these causes, then merely "for the fun of the thing," and to show those attendants, as Sam. Patch, when he was about to leap from the cataract, said that he wished to show the world, that "some things can be done as well as others."

"Excursions to the country in summer, sleigh-drives in the winter, visits to interesting exhibitions in the city occasionally, and attendance at the village church on Sundays, have, during the past year, relieved the tedium of daily routine." (1861.)

A billiard table, a piano forte, books, engravings, &c., have been presented to the institution; and by a sum raised by subscription, bagatelle, back-gammon, and draught-boards, footballs, pictures and toys, have been purchased. The list of "acknowledgments" is long in each of the last reports, and hence we conclude that the Nova Scotia Hospital for the Insane is, as it ought to be, a centre of popular interest and sympathy. P. E.

ART. XXIV.—*On Diseases of the Skin.* By ERASMUS WILSON, F. R. S. Fifth American from the fifth and revised London edition. With plates and illustrations on wood. Philadelphia: Blanchard & Lea, 1863. 8vo. pp. 694.

A REVIEW of the fourth edition of this work was given in the number of this Journal for October, 1857. The peculiarities of the treatise of Mr. Wilson on diseases of the skin, which render it far superior to any other in the English language, are there carefully and fully pointed out and commented upon. We believe, however, that the great value of the work, and the additions made to the present edition, call for something more on the present occasion than the simple announcement of the appearance of a new edition, and the mere indication of the points in which this volume differs from its predecessor.

Mr. Wilson's treatise is not simply what its title indicates; that is, if we are to judge from what is generally contained in works bearing the title on "Diseases of the Skin." It contains a great deal more than a detailed description of the vesicular, papular, pustular, and other eruptive affections that are witnessed on the external covering of the body. As distinguishing it from all others it might be styled a treatise on the skin and its appendages, the hair and the nails, and

the sudoriparous and sebiparous glands, their normal and pathological anatomy and physiology; with an account of their diseases and of the affections in which a disorder of these parts is a prominent symptom, together with their proper treatment.

Owing to the manner in which they are always treated of in medical writings, diseases of the skin bear about the same relation to other groups of disease, that the irregular verbs in a grammar bear to the regular conjugations. As disconnected, unlike all others, and difficult to remember, their study is universally disliked. From the way, however, in which the whole subject has been comprehended by Mr. Wilson, skin diseases are, so to speak, regularized, and their study in the work before us is anything but disagreeable. Indeed, it can be said with truth, that so readable and so satisfactory a medical work is rarely met with.

After an excellent account of the anatomy and physiology of the skin, the sudoriparous and the sebiparous systems, and the hairs and nails, Mr. Wilson, in a separate chapter, enters upon the subject of the classification of diseases of skin, and exposes in a way that cannot be too much admired the manner in which such a classification should be conducted.

L'œil ne voit pas ce qui le touche, 'the eye does not see the object that touches it,' is a favourite maxim which may be applied on this occasion, where, precisely because diseases are directly visible immediately under the eye, we do not judge of them correctly. It is from classifying diseases to which the skin is subject, almost entirely according to what is told of them by the eye, that so little practical benefit results. For example, on the scalp true papulæ are never seen, and vesicles very rarely. On the hands, and especially the fingers, vesicles and pustules are frequent; but on the rest of the surface of the body lichen is the common type. So that, in a general eruption, produced by one and the same cause, occurring upon the entire surface of the body, we would have erythema in one part, lichen in another, eczema in a third, possibly impetigo in a fourth, and psoriasis in a fifth. Now if we should follow the generality of treatises on diseases of the skin in presence of such a case, we would see here five different and distinct complaints belonging to five different orders of disease, and possibly think it necessary, in order to follow what we have read as to the proper course to pursue, to prescribe five different modes of treatment. In a practical point of view, and taking other things into consideration besides what we can see, there is here but one disease, an inflammatory eruption, exhibiting in various parts of the body the five usual modes of manifestation of cutaneous inflammation, and all amenable to the same treatment. For practical purposes, diseases of the skin should be arranged according to their causes; the classification should be etiological. To convince any one who may be at all skeptical on this point, we cannot do better than to refer him to the chapter on classification in the volume before us, and also to the two succeeding chapters in the general pathology and the general therapeutics of the skin.

The present volume differs from that of the preceding American edition principally in containing a number of plates illustrating the anatomy of the skin and its appendages, and the various cutaneous diseases comprising those prepared by Mr. Wilson to illustrate his work on constitutional syphilis and syphilitic eruptions. The whole getting up of the volume is as perfect as possible, and we take unusual pleasure in announcing its presentation to the profession in this country. There are very few medical works which its members generally can have so much reason to desire to possess. By it the treatment of a badly taught and neglected class of diseases, that are the cause of very considerable suffering and annoyance to their patients, is rendered simple and rational, and removed from the special and isolated position which they at present occupy into the general category of diseases of the human frame. W. F. A.

ART. XXV.—*Annuaire de Thérapeutique, de Matiere Médicale, de Pharmacie et de Toxicologie, pour* 1862, *&c.* Par A. BOUCHARDAT, Prof. d'Hygiène de la Faculté de Médecine de Paris, &c. 22 Année: Paris.

THE number of the "Annuaire" for 1862, by the distinguished pharmacologist, Bouchardat, is fully as interesting as his former summaries. One of the merits of this work is its long-continued publication, which gives it the importance of an extensive serial. It is especially valuable as a record for many years of the advance and progress of discovery in the branch to which it is devoted, and must now be considered as a necessary portion of the library of the inquiring pharmaceutist and therapeutist. In our last notice for 1861, a reference was made to the history of this standard periodical, and we believe that a summary of the contents of the present issue cannot be otherwise than acceptable to the readers of the Journal.

Under the head of "*Narcotics*," the first article is devoted to the consideration of the therapeutics of poisoning by morphia and the medicines containing it, with a note of some reflections upon the detection of morphia in the urine. At the commencement of his remarks under this title, M. Bouchardat states that it is surprising that he has not previously published his views, particularly as he has dwelt fully upon the subject in his lectures, in which he maintains that, after the primary stimulant impression upon the nervous system, which assimilates morphia to caffein, has subsided, the depressing effect occurs, the most prominent manifestation of which is sleep. This latter impression is confined at first to the functions of relation, and the sleep resembles that of a physiological kind; but if the dose be larger, "the sleep" extends to the apparatus of nutrition, or organic life. The functions of respiration and circulation belong to the latter series, and should never sleep. If sleep invades these functions, life becomes extinguished, and this is precisely the mechanism of poisoning by opiates. It is ordinarily from six to eight hours that the *general sleep* occurs after the ingestion of the opiate, if it be not interfered with; and it can be readily understood how poisoning can be more rapid if taken at night when retiring, than when taken in the morning. From this is deduced the importance of counteracting the first or physiological sleep, as it precedes the second, or the sleep of the apparatus of nutrition, and it is essential to prevent the patient from falling into it by every means at command. As an antagonistic agent to this condition, M. Bouchardat recommends the liberal use of the strongest infusion of coffee, and it is best to keep the patient awake for twelve or eighteen hours, so as to afford ample time for the elimination of the morphia by the kidneys. The determination of this fact is to be effected by the appropriate test. The test proposed is essentially the same as for quinia and other alkaloids, viz., the iodo-iodide of potassium, made after the following formula: Take of iodine ʒiiss, of iodide of potassium ʒv, of water fʒviij. A less quantity may be prepared, or Lugol's solution will answer the purpose. There need be no fear of employing the solution in excess. So long as the urine gives brown flocculi, the morphia has not been eliminated, and it is necessary to keep the patient awake. In the treatment of the case it is very important to watch the first sleep, to be sure that the respiration and the circulation are normal.

With the adoption of this mode of treating poisoning by opium, M. Bouchardat at the same time looks favourably upon the employment of other remedies, as emetics, if the poison be recently taken, for the double purpose of emptying the stomach and keeping the patient awake. With respect to the latter effect it may be doubted whether the impression of an emetic is calculated to promote wakefulness, and, as depression is induced, the chance of absorption may be augmented. Still an emetic removes the substance from the stomach, and this is most desirable.

With respect to chemical antidotes, abundant evidence is afforded to render him an unhesitating advocate of them. M. Bouchardat does not enter into the consideration of the newly proposed narcotic antidotes, or, as they should more

appropriately be called, the vital antagonistic remedies. From the whole tenor of his reflections, both now and heretofore, we are inclined to believe that he has no faith in their use. By so acute an observer and faithful a recorder they cannot have been overlooked.

Physiological Effects of Atropia, and its Employment in the Treatment of Epilepsy.—A resumé is given of an essay published upon this subject by M. Michéa, in the *Gazette des Hôpitaux*, as follows: 1. Atropia and its salts act principally upon the cerebro-spinal system. 2. They depress or tend to abolish the functions of the different parts of the system successively, and not simultaneously. 3. They affect the motor nervous apparatus before affecting the sensitive, and the last to be impressed are the organs of intelligence and of the moral feelings, or the cerebral organs. 4. In the same way as attacks of epilepsy commence in the muscles of the neck and of the face, the paralysis of atropia, beginning with the iris, successively proceeds to the muscles of deglutition, of phonation, and to the muscles of the eye. In other words, the organs, which are first convulsively attacked in epilepsy, are nearly the same as those impressed by atropia, the order being reversed. 5. In the rational treatment of epilepsy, atropia is preferable to *curare*, which paralyzes exclusively the motor nerves; while the active principle of belladonna not only paralyzes the motor nerves, but also the sensitive nerves, which are the seat of the *aura epileptica*. 6. In the class of Batraciens, poisoned by strychnia, after being previously submitted to the influence of valerianic acid, of valerianate of zinc, or valerianate of quinia, the convulsions were not as violent as when the impression was made exclusively by strychnia; and in place of succumbing, as in the last case, in a perfectly rigid state, they died in a state of complete muscular relaxation. 7. In frogs, previously submitted to the action of the oxide of zinc, of sulphate of zinc, or the sulphate of quinia, the convulsions of strychnia are as intense, or nearly so, and their duration as protracted, as when these articles were not used. And further, death occurred in a tetanic state. 8. In man, certain primary or physiological effects of atropia are produced when the salts are employed. These were brought about more rapidly, and from smaller doses, when the valerianate was employed, than by the sulphate, a fact which is explained by the supposition that the valerianic acid is operative. A half milligramme (gr. $\frac{1}{120}$) of the valerianate of atropia produces often dryness of the throat and dilatation of the pupils the day after its exhibition; whilst, generally, it is hardly on the day after the next, and in the dose of 1 milligramme (gr. $\frac{1}{60}$) that, the sulphate produces the same phenomena. Therapeutically less valerianate of atropia, than of the sulphate, is required to modify the access of epilepsy, or to postpone its return, or weaken its violence. This result, according to the author, is often obtained without exceeding the dose of (in all) 2 milligrammes, or gr. $\frac{1}{33}$, provided the use of the medicine, interrupted from time to time, is sufficiently continued. In fact, in the treatment of epilepsy, the practice is to give valerianate of atropia in the dose of a half milligramme every twenty-four hours, and never exceed 2 milligrammes. 9. In consequence of the state of hyperæsthesia of the skin, either general or partial, existing in epileptics, it is necessary in the treatment to take care to avoid all exciting impressions on the surface capable of producing reflex action, and particularly electrical excitement and cold in the form of lavation or bathing. With reference to the foregoing treatment, M. Bouchardat informs us that he agrees with M. Michea in two points; the first is to commence the dose with a $\frac{1}{2}$ milligramme, and never to exceed 2 milligrammes; the second is to suspend the employment of the medicine on the occurrence of disturbance of vision.

Contrary to the opinion of M. Michea, he believes that crystallizable atropia, which is soluble in the gastric juice, is preferable to all the salts of which it is the base. He reminds the reader that he and Stuart Cooper first introduced atropia into therapeutics, and that he himself first prescribed it in epilepsy.—*Annuaire*, 1848.

The following is a liniment of belladonna: Take of extract of belladonna and of glycerine each two drachms and a half, and mix intimately. Use as an embrocation upon the breast, then cover the part with taffeta. It is intended to check the flow of milk and to prevent abscess.

Effects of Tobacco.—Dr. B. W. Richardson has made some interesting remarks from the observation of a large number of smokers. In the morning before smoking the blood of a great smoker is in a normal condition; in the evening after smoking fifteen or twenty pipes, the blood becomes abnormal; the central point, that is, the central depression of the blood-corpuscles is not visible, and the drops of blood coagulate without drying, which occurs when taken upon the person awakening in the morning. After a tranquil night of sleep the morbid phenomenon referred to disappears. The inhalation of air charged with ammonia has the same effect upon the globules of blood as the smoke of tobacco. The author moreover remarks, that the breath of smokers is always more or less ammoniacal.

Poisoning by the Berries of the Solanum Pseudo-Capsicum.—From the *Journal Méd. de Bordeaux* are taken two interesting cases which illustrate the poisonous influence of the berries of the plants pertaining to the genus *Solanum*. The one referred to has been introduced into Europe and this country from South America. It has been called the S. montanum and S. Valenzualæ, D. C. It resembles the bird's-eye pepper both in the leaves and berries. From the resemblance to the latter it has the first mentioned designation. A child of five years of age died at Moissac from eating the berries of this plant, and another child of four years was seriously affected by them. Three or four berries are sufficient to produce poisonous effects of serious import, such as nausea and vomiting, somnolence, acute hypogastric pain, dilatation of the pupil, &c. In the latter case free vomiting, the application of mustard plasters, and the administration of coffee, affording relief.

The berries of the *Solanum dulcamara* are productive of the same results. A case of death is recorded in the *Revue Médico-Chirurgicale*, from the latter. These cases bring to mind one which occurred to the late Dr. Isaac Parrish, of this city. Symptoms of narcotic poisoning were present but not accounted for until autopsy revealed the cause in the stomach.

Chloroform and Ether.—It appears that the cases of death from *chloroform* are *more numerous* this year than in preceding years. Perhaps it may be that the medical press has registered them with more care than previously. M. Bouchardat states, that he accords with the opinion of the editor of *L'Union Médicale*, in thinking that "chloroform has so great a power for good or for evil that all that tends to preserve the good and diminish the bad ought to be recorded with the greatest care." The following facts are presented by the last year's experience: M. Vigneron has presented an experimental work, which establishes the fact clearly, that the pain of the operation favours the syncope produced by the chloroform. M. Am. Forget endorses this in the following terms: "In the presence of these facts, confirmed equally by clinical observation and experimental teaching, and which concur in establishing that where the traumatic impression alone is acute, yet fugacious and transient, the intervention of anæsthesia by chloroform renders this impression persistent and profound, perhaps mortal. In the presence of these facts, I say, who will not be led to demand, if the remedy for an evil inherent to humanity, that is for physical pain, is not worse than the evil itself?" M. Forget excludes from this view of anæsthetics the employment of ether, of which he says that this article which preceded the employment of chloroform, and whose abandonment was *justified* by no sufficient motive, is far from being as dangerous. It is capable of fulfilling all the indications required of it. The surgeons of Lyons have never abandoned the employment of ether, and they have been justified in giving to it the preference; for it is but exceptionally that the ultra partisans of chloroform have been able to oppose to their opinion and practice, which has now continued nearly twenty years, some rare examples of accidents of a serious nature, and then at the commencement of its use, and which have not been interpreted with perfectly irreproachable accuracy.

A memoir before the Chirurgical Society of Paris, by Dr. Ernest Berchon, has for its object the direction of attention on the part of surgeons to the *methodical* employment of anæsthetics, and especially of chloroform. It has for its foundation an immense number of facts, collected since 1849, in the hospitals

of the Military Marine, on board the transports in the Crimea, in Italy, and in the naval stations and colonies.

It contains 296 observations derived from the clinical wards of surgery, mostly of Brest and Toulon, and the author has limited himself to the clinical demonstration that if the anæsthetic be properly administered, as is the case in the marine service, no accident will occur. This result, sufficiently remarkable to be noted, is due to the rules invariably adhered to. These rules consist principally, in the use of chloroform chemically pure; in the limitation of the dose to an exact quantity, which should not exceed 10 grammes (154 grains), and in the employment of an apparatus which is very simple and does not impede external respiration. The apparatus is a cone of pasteboard with a diaphragm of gauze. In the greatest number of cases two or three minutes suffice to bring on profound insensibility, whatever may be the age, the occupation, or other individual conditions of the patients.

Anæsthesia, thus rapidly produced, is kept up wonderfully to the termination of the most varied operations, and it is rare to be obliged to administer the second dose, of five grammes, to keep up the effect.

The study of the symptoms of the ordinary periods of inhalation is also entered upon in this memoir, as well as successive discussions upon anæsthetic agents that took place either at the Academy of Medicine, in 1849 and in 1857, or at the Surgical Society, in 1853.

The enumeration of clinical and chemical means proper to ascertain the purity of chloroform, and the employment of measures calculated to combat the accidents attendant upon inhalations, complete this work, which is pronounced to be one of the most useful and perfect to which the practice of anæsthesia has given rise. The absolute innoxiousness of the method since 1849, ought naturally to attract attention in the face of recent misfortunes. It shows that the fears put forth on the subject of chloroform are, *at least*, exaggerated.

Vomiting produced by Chloroform, and Means of preventing it.—We are informed by Dr. Fisher that vomiting is one of the complications produced by chloroform; to be apprehended because it can induce asphyxia and syncope. He recommends that a glass of wine be administered to the patient, from fifteen to twenty minutes before the inhalation, in order to guard against the occurrence.

Chloroform in the Treatment of Biliary Calculi, is recommended by M. Bouchardat, on the principle of dissolving the cholesterine of these bodies. It may be used as a substitute for ether. For the internal administration of chloroform a formula is offered, as follows: 1 gramme of chloroform and 8 grammes of alcohol, given in wine, water, or syrup. The rule to be followed is 1 part to 8, and in administering a larger quantity than directed by the formula, this is to be observed. The mixture with syrup gives a perfectly stable preparation, capable of preservation for several months without alteration. With wine the flavour is improved.

New Local Anæsthetic Agent.—M. A. Claisse recommends, when minor operations are to be performed, to apply or rub upon the part a strong solution of camphor in ether; the application is to be continued for a minute or two before the incision is made. In this way the pain is lessened when an abscess is opened, &c.

Under the head of stimulants is a summary of the effects of *coca*, which was published in *L'Echo Medical Suisse*, and which contains the following conclusions: 1. In small doses coca produces a local action, consisting in a passing augmentation of the salivary secretion, followed by dryness of the throat and a feeling of warmth in the epigastrium; moreover, it has a tonic property, which supports under fatigue. 2. In larger doses coca acts as a special narcotic. The most marked effects are general ease and comfort, intellectual and corporeal composure, and reduction of the pulse. In very high doses it additionally induces dilatation of the pupils. It is now known that this article is the leaf of the *Ilex paraguayensis*, and, according to Stahlschmidt, it contains *cafein* or *thein*. The Bolivean article owes its properties to an alkaloid.

Physiological and Therapeutical Effects of Digitalis.—Under this head we have the conclusions that have been reached by Pfaff and Germain:—

1. That in contradiction to the opinion of Saunders, which is in opposition to all that has been observed before and since, digitalis diminishes the *frequency* of the contractions of the heart.

2. It is *not* demonstrated that it *weakens* the force of the contractions of the heart, whilst the theory and experiments of physiologists, as well as M. Germain's own experience, prove that one of the effects, in diminution of the orifices of the heart, is to augment it, and, consequently, there is no danger of giving this article in cases where the energy of the heart appears diminished.

3. The frequency of the heart's action in the case of contraction of the orifices, preventing a return to a normal functional condition, and keeping up the disorder of the circulation, digitalis possesses the property of diminishing this frequency, and it is not necessary to appeal to any other mode of operation to explain the amelioration of the symptoms under the use of the medicine.

4. There is not to be found in the writings of authors anything to prove that digitalis possesses *diuretic properties*, and this reputation which was given to it by Withering, appears to have been accepted without discussion by those who have followed him.

5. It is true that in organic affections of the heart, where the employment of digitalis leads to reduction of the circulation, an *abundant diuresis* is produced But this occurrence is but a mediate effect of the return of the circulation to the normal state.

6. All authorities are unanimous in attributing to digitalis a powerful influence over the stomach. In small doses it stimulates the appetite, but in doses by which it acts upon the heart, it produces anorexia, sometimes nausea, and may become the cause of serious dyspepsia.

The following is a summary of the rules to be observed in the administration of digitalis, according to the observations of M. Pfaff:—

1. Digitalis ought not to be given in *increasing* but in *decreasing* doses.

2. It is necessary to diminish the dose, as soon as the paralyzing effect is perceived upon the heart and the arterial system.

3. The calming impression of the medicine upon pathological activity of the heart is persistent, and continues sometimes from five to eight weeks.

4. Digitalis ought not to be continued under any form more than six or eight days. If after eight days of administration, the desirable results are not obtained, it is best to have recourse to squill or colchicum. These two last mentioned agents exercise a depressing influence upon the activity of the heart, and if, after their administration, digitalis is again used, its effects are more speedy and of long continuance.

5. In subjects of torpid constitution, it is best to precede the use of digitalis by squill or colchicum.

6. To avoid derangement of the stomach, it is best to associate digitalis with aromatics, or bitter tonics.

7. In the aged it is best to associate it with bark; in tuberculous subjects with opium; in dropsical cases with potassa salts or the acetate of ammonia, with polygala, squill, juniper berries, &c.; in the plethoric with cremor tartar, magnesia, sulphate of potassa or nitre; in the anæmic with iron.

8. In following the employment of digitalis by arsenic, it may happen that the cyanosis attendant on the diseases of the heart is lessened.

In commenting upon the first series of propositions, it is remarked by M. Bouchardat that in all cases he prefers digitaline for exhibition in accordance with the views of M. Homolle and Quevenne, and that he concedes willingly two things: 1st, that the diuretic property does not appear clearly except in certain pathological conditions, and especially in dropsy connected with disease of the heart; 2dly, that this diuretic action is tardy and does not occur until after four to six days, when digitaline has been given in sufficiently large doses, yet he dares not affirm as positively as M. Germain that the diuretic effect depends upon the return of the circulation to the normal state. With respect to the second series, he remarks that he is perfectly of accord with the injunction that digitalis should not be continued more than six or eight days continuously. But he disagrees with M. Pfaff in prescribing the medicine in decreasing doses.

With regard to the course of alternating with squill and colchicum, he perfectly agrees with the author.

As has been the custom with M. Bouchardat, the concluding portion of the *Annuaire* being devoted to some subject of interest in a hygienic, therapeutic, or chemico-physiological point of view, he has selected for discussion in the present issue a highly important topic, viz., the "*Abuse and the use of Strong and Fermented Liquors.*" The essay under the above title, it appears, was read before the "Conference of the Polytechnic Association for Working Men," held in the Amphitheatre of the Faculty of Medicine of Paris. We shall give an analysis of the facts and statements made by the author.

Avowing himself as bred in the wine-producing portion of France, and adverting to the importance of this industrial branch to the revenue and prosperity of the nation, he commences his statement with the following decided avowal: "The more I have carefully explored the depths of the question as above stated, the more I have become convinced that the undue use and uncontrolled employment of alcoholic drink is an enemy which the physician and the philosopher ought most to fear in its opposition to the progressive march of humanity." The general impression is that the French nation is not addicted to the vice of drunkenness, yet here is an exposition of opinion from a practical observer which is worthy of attention, and which chimes in with the experience of enlightened philanthropists over the world.

With respect to the progress of hygiene and its results in France, we are informed, according to the tables of Duvillars, that before the year 1789 the mean duration of life was 28 years. In 1817 it had advanced to 31 years. In 1834 to 34, and in 1853 to 36. It may then be said that the term of life has been extended with the extension of civilization, yet may it be said that civilization, advancing in a certain direction, conducts to decadence and tends to the abridgment of the mean duration of life.

The crowding of people in great manufactories has not favoured progress in all particulars, for we may instance the deplorable state at a certain period of the working population of Manchester and Lille. In some of the quarters of these cities, the mean of life's duration had descended below the lowest number that has been stated. The movement of the inhabitants of the country to large cities is equally unfortunate to the average of life and to the progress of civilization. Among a population removed from the country, there are generated factitious wants, which are gratified at the expense of real requirements. With many other evils is produced that state which may be called ennui of life, which is combated by measures affecting the nervous system, and which conduce to degeneration, such as indulgence in the use of tobacco and the consumption of alcohol.

In the following order the subject of alcohol is discussed: 1st, of the alcoholic liquors in general, and their immediate action upon the economy; 2dly, the history of the principal alcoholic drinks and spirituous products; 3d and lastly, the exposition of the evils originating from the abuse of alcohol.

Alcohol diluted with water is rapidly absorbed, as has been demonstrated by M. Bouchardat and M. Sandras. They gave to a vigorous dog a draught containing 150 grammes of alcohol and 50 grammes of oil, which was swallowed without difficulty. In two hours he was killed, when the stomach was found to contain but a small quantity of the alcohol, in fact but one gramme of matter containing it could be obtained by distillation. The intestines contained none, and the chyme showed only its presence by the faintest odour. It is not taken into the system by the lacteals, but as determined by the experimenters, through the veins, the blood of the portal vein exhibiting a notable quantity of it. It has been detected by Lallemand, Perrine and Dusoy, in the liver, in the brain, and other organs.

The presence of alcohol in the blood and its effect upon the blood itself can be demonstrated by experiment. It is known that few animals have a liking for alcohol, and that some of them, the rabbit for instance, are killed by small quantities, but others, as cocks, take greedily of food impregnated with it. An old cock was selected, who was remarkable for his taste for bread soaked in

brandy. He ate so rapidly that he was soon in a state of intoxication, his eyes shone, his gait was unsteady, but the important point for consideration was the change of colour in his comb. To the bright ruby colour succeeded a black hue; the arterial blood was supplanted by venous blood. From this M. Bouchardat argues that this action upon the blood is sufficient explanation of the sudden death from asphyxia that follows the ingestion of alcohol, of which he has seen numerous cases. It may however be stated that where death is instantaneous it is more likely due to the intense shock to the nervous system and paralysis of the heart.

The question arises, is alcohol eliminated from the economy, and in what manner? This question, which has been much agitated, M. Bouchardat confesses he approaches with reserve. M. Sandras stated (*Annuaire* for 1847) that a drunkard, saturated with alcohol, emits alcohol from the lungs by gas and vapour, yet this is a small portion of the quantity that had been actually absorbed. It was not found in the perspiration, and with respect to the urine, MM. Lallemand, Perrin and Duroy were more fortunate than the above experimenters. Still a quantity was obtained which in no manner represents the alcohol absorbed, so that the conclusions of those gentlemen are not borne out that alcohol passes through the economy *without change*. A man was closely observed for several days, who with his regimen took 300 grammes of red wine, but no evidence was given of free elimination in the way alluded to. Hence the author adheres to his opinion that a small quantity of the alcohol taken is eliminated, and the balance is consumed and transformed into carbonic acid and water. With reference to this case of conversion, it has been asserted that aldehyde and acetic acid were products within the economy, but these bodies were not detected either by Bouchardat and Sandras, or the three experimenters named. As a direct conflict exists between the statements and conclusions of those who have examined the subject, it is open to further experimental investigation.

It is argued that alcohol from its destruction in the economy produces heat, and this in a short time after it is taken in. Such physiological effect accounts for the greater digestion with impunity of this combustible in winter than in summer, and to the largest extent by the Northern nations. Does it impart force? The increase of energy is but temporary, still, when the article is properly used it is an assistance to labour. It is an excitant of the nervous system, and if this excitant is not employed advantageously, it is followed by depression. It must be admitted, however, that alcoholic drinks when taken in moderation have an incontestable power to excite the intelligence, combat ennui, produce agreeable reveries, without resulting in loss; and it is important that this effect should be secured when it is first produced. This is a law which applies to all excitants of the nervous system. Proper alcoholic beverages, therefore, offer undoubted advantages to convalescents who have been exhausted by disease, and to the labourer, who is borne down by work, but at the same time it is clear that an excess is in every case injurious.

A reference has been made to the influence of climate upon the action of alcohol upon the system. From Mr. Hus, a distinguished physician, who has written a most interesting work upon the abuse of alcohol, we learn that in Sweden, many workmen can from habit absorb a demi-litre of brandy daily, and that disease of the brain is very common with this class of drinkers, whose lives are much curtailed. In Russia, the consumption of alcohol is enormous, it is encouraged by the "farmers of the revenue," and this is one of the most important reforms to be accomplished in the fiscal system of the Emperor.

If we study the influence of alcoholic drink according to the periods of life, it will be found that it is most injurious in infancy, that the abuse of it presents considerable danger for adolescents, and that in age its indulgence is less prejudicial. At the particular period of life, which may be specified as the "turn of life," there is danger from the tendency to increase the quantity of alcoholic drink; the nervous system may be undermined, and so far from augmenting the amount, it ought rather to be lessened. It has been said that wine is the "milk of old age," but in green old age it should be moderately used. At the period, when from old age there is failure of power, when solid nourishment is with

difficulty digested, it is stated by M. Bouchardat that wine offers the "resource supreme."

With respect to sex, it is remarked that in consequence of the impressible nature of the nervous system, alcoholic drinks should be used with great caution, but further, a constant restraint is imposed upon the female sex, since modesty and inebriety are entirely incompatible.

There is a condition upon which it is important to insist in the consideration of alcoholic drinks, and that is emptiness of the stomach. It is the custom to take a small drink of alcoholic fluid upon rising, but, alas, to this the habit is not restricted. The system at this time is in the worst state for the reception of such ingesta. The stomach, in consequence of its emptiness, is more liable to irritation than after a repast of solid aliment, which by stimulating the flow of gastric juice produces dilution, protects the mucous coat and induces slower absorption, or at least in combination. Upon an empty stomach then alcoholic liquors should not be taken.

After discussing the conditions of drunkenness and its concomitants, M. Bouchardat enters upon the consideration of the several kinds of alcoholic drinks; commencing with wine. This form of fermented liquor is regarded as the most important, the most useful when its employment is properly regulated, and the least injurious, in certain respects, even when abused.

After presenting the varieties of grapes constituting the stocks which furnish the several kinds of wine in France, M. Bouchardat gives a list of the ingredients which are found in the 1000 parts of *red wine*, to wit: water, 878; alcohol, 100; of butyric and amylic alcohol, and aldehyde, traces. Acetic, capric, caphylic, and other ethers, odorous matter and essential oils, constituting the bouquet, sugar, mannite, glycerine, mucilage, gum, colouring matter (œnocyanine), fatty matter and azoted matter, tannin and carbonic acid, bitartrate of potassa, tartrates, racemates, acetates, propionates, butyrates, lactates, citrates, malates, sulphates, nitrates, phosphates, silicates, chlorides, iodides, fluorides, succinates, potassa, soda, lime, magnesia, alumina, iron, and ammonia, 22. This elaborate composition of wine, however, is not to be regarded as uniform. Some of the principles are wanting in wine, and some of them are in infinite small amount. The proportion of alcohol varies in natural wines from 5 to 15 per cent. The following table presents the percentage in the wines enumerated:—

Côte d'Or,	Nuits rouge, 1846	13.50
id,	Mont-Rachel blanc, 1846	14.00
Yonne,	Rouge d'Avallon, 1834	11.14
—	Blanc pineau chablis, 1842	12.54
Lot,	Cahors rouge, 1811	12.00
—	Cahors blanc, 1811	12.33
Gironde,	Bordeaux rouge, 1841	10.10
—	Sauterne blanc	15.00
Pyrenées Orient,	Banyuls	15.16
Drome,	Hermitage	11.0
Marne,	Sylleri Mousseux	9.11
Madeira, naturel		15.5
Malaga, naturel		15.0
Alicante		15.2

There is no doubt that the alcohol plays an important part in the physiological and hygienic influence of wine, but this influence is modified by many other immediate principles to which attention ought to be paid.

Tannin and the colouring matter of wine come from the coating of the seeds and the husk of the grape. Without direct proof, it is probable that the tannic acid of the grape is the same as of galls. M. Glenard has isolated from red wine two colouring substances which appear to be immediate, definite principles. Acids exist always either in a free state or in the condition of salts, with very decided acid reaction. Cremor tartar is found in wine in the proportion of 2–6 in 1,000. M. Pasteur has discovered that succinic acid is, like alcohol, a constant product of the breaking up of sugar under the influence

of alcoholic ferments. The same is the case with respect to the glycerine, the proportion of which is pretty considerable, and which was confounded, before those beautiful researches, with the so-named extractive matters.

The bases are almost as numerous in wine as acids—they are the same as are constantly found in the living organism. Potassa and soda should be mentioned, which in weak proportion is met with as chlorides, as in the blood and muscles.

The bouquet results from the union of several odorous matters, as alcohol, ethers, aldehyde, essences, and those analogous to what M. Millon terms perfumes. Well then may be understood the inability to approach by imitation the flavour dependent upon such numerous and delicate substances.

When we attempt to estimate the part performed by wine in nutrition, the importance of the association of alcohol with a liquid of decided acidity, not only upon the taste, but in the effects, is apparent. The simultaneous absorption of the acid abates the destructive action of the alcohol upon the economy, and its excess of action upon the nervous system. Tannin and the colouring matters exert an action upon the stomach which, in certain conditions, is favourable. The bouquet, which impresses the taste and smell, is useful, as it is known that very small amounts of sapid articles exert a happy influence upon nutrition.

It is asserted by M. Bouchardat, that when wine is of specific gravity approaching to that of water, it is absorbed less rapidly than brandy, and he remarks that this circumstance is favourable to protracting absorption, and to utilizing the alcohol, at the same time that the destructive effect is moderated. There can be no doubt that dilution renders the alcohol less injurious, and the greater the dilution the less quantity can be introduced; but the fact of a more rapid introduction of brandy than of wine dependent upon its strength, is in opposition to the experiments of Matteucci and Dutrochet, who found that the current, where water and alcohol were concerned, in endosmose, was from the water to the alcohol, so that it would appear that until the alcohol is sufficiently diluted there is a bar to its introduction. We incline to the belief predicated upon these experiments, that the more rapid inebrient effects of a definite quantity of alcohol is promoted by sufficient dilution to promote absorption. It is not necessary that wine or alcohol should be digested; but dilution can take place from the fluids thrown out by the stomach.

From the complexity of inorganic materials entering into the composition of wine, and which, to a certain extent, approximate those of the human organism, it can be understood how serviceable it may be in individuals exhausted by insufficient alimentation; and with respect to the effects of it at different ages, the same remarks are applicable as in the case of alcohol. At any age where there is defect of nutrition it may be profitably employed. M. Bouchardat admits the advantage which the workman may derive from the restricted use of this beverage, whose forces are much exhausted by his labour, but protests against the inordinate use of it, and especially on Sunday. For the sailor wine is preferable to brandy. As an illustration of this fact, he cites two vessels employed in the South Seas, the one French and the other English. In the first, wine was given as a ration, in the other brandy (probably whisky); and while the crew of the French vessel was exempt from scurvy, that of the latter was attacked by it. The explanation is given in the protective properties of the wine containing organic ingredients, especially the salts of potassa.

There are certain morbid tendencies which may be favourably affected by the moderate use of wine, as the glycosuric diathesis; and in marshy countries a free, full diet, with an allowance of this beverage, constitute a powerful preservative. In convalescents where nutrition is impaired, with good diet it is of especial benefit.

The abuse of wine entails the same effects as brandy, although in less degree. The too free use of it at each repast, in which certain persons indulge, cannot be too forcibly reprobated. To be sure there are different idiosyncrasies in this respect. In some persons a single glass produces redness of the face and headache, while with others a pint produces no impression. With this we ought not to be deceived, the repeated excitation of the brain is always pre-

judicial, and it is rare that this kind of stimulation of the brain should be resorted to to develop and augment intelligence. Drunkenness from wine induces less speedy and less profound disturbance of the apparatus of innervation and digestion than that from brandy. The inebriates of the wine-producing countries, where the article is less strong in alcohol, live longer than those from alcohol, and some of them attain advanced age. Dropsy, connected with disease of the heart, is the affection of which they die.

The following classification is given of the wines commonly used in France, the red and the white:—

1. *Wines in which predominates one of the essential principles of wine.*

A. Alcoholic	Dry wines	Madeira, Marsala.
	Sweet wines	Malaga, Banyuls, Lunel.
	De Paille[1]	Arbois, Hermitage.
B. Astringent	With bouquet	Hermitage.
	Without bouquet	Cahors.
C. Acid	With bouquet	Rhine wine.
	Without bouquet	Vin de Gouais, d'Argenteuil.
D. Mousseux		Champagne.

2. *Mixed or finished wines.*

A. With bouquet.	Burgundy	Clos-Vougeot, Mont-Rachet.
	Medoc	Chateau-Laroze, Sauterne.
	Medi	Langlade, Saint Georges.
B. Without bouquet.	Ordinary Burgundy and Bordeaux.	

M. Bouchardat objects to the division into red and white wines. The first division of alcoholized wines comprehends those of which Madeira and Marsala are the type. As they are delivered by commerce, and are almost always sur-alcoholized, they contain in fact 25 per cent. of alcohol, while fermentation does not develop more than 15 per cent. When administered in small amount they replace brandy, and may be useful to convalescents, old persons, &c.

Sweet, strong wines are also excellent on the same account, and they are equally characterized by a peculiar flavour. Some of them, as Lunel and Banyuls, are the direct product of fermentation; others, as Alicante and Malaga, are produced from the juice concentrated by heat, and are often additionally alcoholized. M. Bouchardat avows his belief that by pursuing the same course, wines of a superior kind to those imported could be procured in France, and which would be equal to the best cordials for the sick and those needing them.

The red Hermitage wines are properly classed among the mixed or finished, but drunk in their early stage, they have a strength which is not agreeable. They can be mixed with the new wines of Gironde so as to give to them greater delicacy, a pleasing aroma, and the property of keeping. This is so well understood by the skilful dealers of Bordeaux that those wines have disappeared from commerce. The grapes furnishing Rhine wines are recommended for cultivation.

The preservation and improvement of wines is a subject of importance, demanding much information, nice observation and practice, which is handed down from person to person. It is well known in the wine cellars that wine works at different periods according to the age of the vine. This fact is based upon an attentive observation of phenomena; it is not a fanciful idea. Vitality in wine may lie dormant for several months, and become manifest sooner or later under an elevation of temperature or other causes which cannot be now entered upon. The first manifestation of this vitality is the alcoholic fermentation due to the decomposition of the sugars (glucose, sugar of inulin), and the formation of alcoholic and carbonic acid, succinic acid and glycerine, under the influence of the alcoholic ferment. The second change is the butyro-acetic fermentation, which consists in a conversion of the tartaric acid, in addition to the alcohol, under the effects of a special living organized ferment. The third is the acetic fermentation, which, as M. Pasteur has demonstrated, is equally established by the action of a living organized ferment.

[1] Wine prepared from dried grapes preserved in straw.

At each new decomposition the equilibrium is deranged in so complex a fluid, matters in solution are precipitated, and others which have been precipitated are redissolved. It is by a series of phenomena more complicated than has been indicated, which may be latent or violent, that vines attain perfection, or are altered and undergo such change as to indicate that they are "diseased." The *bouquet* appears with time. It is necessary for it to appear, that the wines should be preserved for two, three, or more years in wood, whence it is removed to bottles, or it may be that months or a year elapse before the deposit takes place in bottles and the bouquet is formed. Acids of the butyric series are developed during the decomposition of the tartaric acid under the influence of one or several ferments, and ethereal products are generated. The production of the bouquet always coincides with the deposit in the bottles of a substance which consists of organized globules, different in the different wines. An elevated temperature hastens the appearance of the bouquet, but it also favours the development of those diverse ferments which render the wine diseased. In keeping wines there are two requisites—the avoidance of an elevated temperature, and the exclusion of the atmosphere.

Among the diseases of wine may be mentioned the *grease*, which especially attacks the white wines. They then become stringy, like the white of egg; there is developed an organic substance which retains the fluid in its meshes, and which is at the expense of the sugar remaining in the wine; mannite is one of the results. This effect may be counteracted by tannin, and to prevent such transformation, or to correct it, tannin or nutgalls are used. M. Bouchardat informs us that he has seen wines effected by grease, when placed in cool cellars correct the disease by the deposition of this matter, and recover spontaneously. When wine becomes bitter the disease is incurable, but mixture may render it less disagreeable. Wines which are termed "pricked," which is the first stage of acid fermentation, are used to procure alcohol by distillation. When the acetous fermentation has advanced, the wine is turned over to the vinegar maker.

M. Bouchardat declares that the falsifications of wine are much less numerous, or much more simple, than is generally believed. Most frequently the practice is confined to mixing weak wines with the stronger, and sometimes the least conscientious dealer adds water. To determine this latter fraud, the amount of solid matter left by evaporation of a given quantity is an index of dilution. M. Bouchardat suggests a proceeding which he used to detect the adulteration with water in a case which presented itself to him. It is the addition of the solution of oxalate of ammonia to wine so as to throw down a precipitate, or render cloudy the specimen, after it has been decolorized by chlorine. This depends upon the detection of the lime-salts held by the diluted wine. In old wine all of these salts have been deposited; but in recent wine, which is ordinarily mixed, they still exist in the liquid. Sometimes wines are plastered; that is, the sulphate of lime is added—an old custom which has been handed down from the Greeks. The effect of this, according to the author, is to substitute the bisulphate of potassa for cremor tartar, and to overcome some of the difficulty of preserving wine in warm locations.

The next alcoholic beverage referred to by M. Bouchardat is cider. This is produced in the north of France, and especially in Normandy. Its use is traced back as far as the Roman occupation of Gaul. In 587, it is known, that perry was the drink of the saintly Radegonde, Queen of France. In the eighth century it was popular, and Charlemagne, in attending to his domains, regarded with extra favour those managers who understood the making of cider.

Under the head of the "Abuse of Cider" it is stated that the excess of malic and carbonic acids has appeared to determine gastralgia. It is a drink which is very grateful to glycosuric patients; but the abuse, and sometimes the use even, is prejudicial to such diseases. When this drink produces inconveniences, it is attributable to bad preservation. There may be formed fungi, or mucadineous productions, which may be poisonous, and induce or predispose to diseases; or there may be a transformation of the malic acid to butyric.

Our author alludes to the fact that, in his course upon hygiene, he has attributed that fatal disease—miliary sweat—to alimentary drinks, which had undergone change from mal-preservation.

Under the head of "Malt Liquors" it is remarked, that an excess in them promotes obesity, and in connection, the diminution of the forces of life. Their abuse is further placed among the predisposing causes of glycosuria. In the formation of malt liquors, M. Bouchardat reprobates the practice of substituting any other bitter substance for the hop; the articles employed being gentian, menyanthes, lichen islandicus, quassia, picric acid or bitter of Welter, &c.

With respect to the introduction of strychnia, although avowing a belief in its use, no proof, except hearsay, is presented. This subject has been much agitated in this country, and has been placed at rest by the investigations that have been made. In fact the use of so deadly a poison is hardly possible without accident or lamentable occurrences. That cocculus indicus is added is beyond doubt, which, like hops, prevents a second fermentation. "This dangerous sophistication is so prevalent in England," says Mr. Koop, "that some authors of special treatises have given injunctions upon the subject. It is recommended not to add more than 1500 grammes of cocculus indicus for 50 bushels of malt.

Under the head of "Strong Liquors" some interesting statements will be found. Our limits forbid, however, our dwelling too long upon the information which precedes the exposition of the physiological and pathological effects which conclude these papers, and of which we desire to present an analysis. Before proceeding to this, there are some points which may be noticed. It may be said with truth that the "Eaux de vie de vin," or, as they are commonly called, "brandies," are the most highly esteemed of the strong liquors. Those of France are not excelled by any others in the world. That of Cognac may, for example, be cited as most remarkable for the bouquet. This has induced imitation by adding to rectified alcohol, diluted with water, either ethers or other odorous matters, but with little success, as the fabrication is easily detected by the experienced palate. A fraud more difficult to detect consists in distilling wine which produces this marked species of brandy with inferior brandy, which thus to a less degree is impregnated with the perfume. Honest distillers are justly indignant at this unfortunate practice, which has for its infallible result the discredit of their products. An association has therefore been formed for the security of their business and protection against imposition. It is the stock of grapes called *Folle Blanche*, furnishing a wine of middling quality, which furnishes this fine quality of brandy.

The brandy of Montpellier is obtained by distilling the common wines of Languedoc and of Provence; the stock of grapes yielding them are designated as *Teret Bouvet* and *Aramon*. It is of good quality. That of Armagnac is also esteemed.

The liquor called *Absinthe* is elaborate in composition. We are informed by M. Bouchardat that it is made by distilling alcohol from a mixture with the leaves of absinthe, major and minor, angelica root, calamus, dictamus of Crete, or origanum, star anise, &c. It is coloured with several articles, and sometimes the salts of copper are improperly used for this purpose. The superior qualities of the article contain nothing but the alcohol and volatile oils. It is a powerfully stimulating drink, but at the same time attended with pernicious effects. One of these is to produce dryness of the throat, which incites to new libations, which ultimately induce excessive indulgence and ruin. M. Bouchardat is of opinion that absinthe more predisposes to delirium than pure alcohol, and that the continuance of it more frequently produces chronic delirium and progressive general paralysis. His conclusion from observation is, that absinthe occupies the first rank among dangerous drinks.

The last portion of the essay is occupied with the effects induced by the abuse of alcoholic liquors, or, in other words, the divers disorders of the economy which are comprehended by the term *chronic alcoholism*. Under this head are placed the affections which arise from the prolonged use of strong drink or habitual intoxication. The effects may be arranged under the following heads:—

1. *Digestion.*—The mouth of persons addicted ordinarily to alcohol is dry, especially in the morning upon rising, the tongue is thick and sometimes cleft. Anorexia is a common effect. Drunkards suffer uneasiness in the epigastrium,

have an invincible distaste for solid aliment, and, perhaps, vomiting, with the discharge from the stomach of a thready fluid composed of glairy mucosities. It is easy to understand how absorption from the stomach and bowels becomes sluggish in this class of persons. Diluted alcohol is easily absorbed, but this is not the case for normal aliment. The alimentary fluids and nutriment remain in the stomach and undergo putrefaction, whereby the breath becomes tainted, and digestion is permanently deranged. The stomach at first stimulated by the presence of alcohol pours forth an abundant secretion which is too dilute for digestion, the mucus is augmented, and there is induced the first departure from healthy functional action. In time, however, when irritation has been established of a chronic character, or subacute inflammation has been produced, the reverse of this, we think, is the case, and there is deficiency of other than thick morbid secretion, which interferes with absorption irrespective of the altered state of the mucous membrane. In this condition morbid secretions are prone to take place, even hemorrhagic in character.

Upon looking into the state of the alimentary canal we observe that drunkards are subject to flatulence, to colic, and that constipation is a usual concomitant, or there may be diarrhœa alternating with constipation, a usual result of an engorged condition of the liver. That disease of the liver should be a usual attendant, can be understood when it is recollected that this organ is the first to receive and retain the anormal fluid. The disease of the liver may be associated with hypertrophy, and fatty degeneration with enlargement. On this material being absorbed induration may be produced.

In northern countries cirrhosis of the liver is the common result of the abuse of alcohol. In the middle or temperate regions, M. Bouchardat states that bilious fever and hepatitis are sequences, and in warm countries there is a proneness to dysentery. Considerable diminution of healthy nutritive aliment will lead to general wasting of the economy, and hence the dropsies which are a frequent cause of death. The course which nutrition takes under the use of alcohol, however, may be stated to be, in the first place, that of exaggeration; the individuals addicted to drink become fuller in habit, with injection of the skin and redness of the face. As the organs become diseased, with the deposit of fat in them their functional actions become embarrassed, and then, with depraved digestion, and the abstraction of proper elements of reparation, the fluids liquefy, the blood becomes watery, and with impeded circulation existing in the heart or in the liver, effusions general or local are inevitable. The first augmentation of size is from the increase of fatty deposit in all the tissues; the second appearance of fulness is from serous effusion. This latter condition in common language is known as the "white bloat."

2. *Apparatus of Innervation.*—The manifestations of derangement of this apparatus are as varied as interesting. They have been well elaborated by the labours of the Swedish physician, Dr. Magnus Hus, and are presented in a thesis of remarkable merit by M. V. Racle, upon alcoholism. They pertain to modifications of sensibility, of movement, and of intelligence, so constantly observed in habitual inebriates. Feebleness of muscular force is generally predominant. Generally this state does not actually attain paralysis. It differs from the paralysis that ensues upon apoplexy. It advances gradually from the periphery to the centres. It has been described under the names of chronic meningitis and tabes dorsalis, and, in some respects, resembles the general palsy of the insane, a general progressive palsy. After a certain length of time the extremities, especially the superior, commence to become weak; sleep is interrupted by dreams. At first the ends of the fingers become enfeebled, the person can but imperfectly close the hand and permits objects he has grasped to escape from it. This weakness extends to the forearm, to the arm, and the shoulder. It is soon exhibited in the lower extremities, the gait becoming tottering and uncertain, and sometimes it extends to the muscles of the back, the patient becoming more and more weakened and incapable of maintaining any upright position. The power of voluntary movement is not actually wanting, but there is an indisposition to move because a strong effort is necessary. He cannot feed himself, and has to be fed. This state is little removed from general paralysis. There may be conjoined paralysis of the bladder, of the large intestine,

of the œsophagus, and even of the tongue, and there may be subsultus tendinum and cramps. This form is not invariable; occasionally accompanying symptoms are lighter and marked by anæsthesia, a muscular weakness, which comes on slowly, or is brought on in consequence of an acute attack of disease, which may be delirium tremens, acute rheumatism, erysipelas, or an injury. If the patient then indulges in no excess it may continue moderate, but if there be a continuance of bad habits it may assume the most intense form.

If paralysis of the bladder or of the intestines has occurred, the expectation is slight of any notable amelioration of the condition.

These symptoms pertaining to the muscular apparatus are accompanied, preceded, or followed by other morbid states which contribute still further to characterize this form. The exterior of the patient is altered, his countenance indicates hebetude and slothfulness, the white of the eye has a yellow tinge, the skin becomes dry and yellow, emaciation takes place, and the muscles become soft and flabby.

With respect to the intellectual faculties a settled condition of hebetude overwhelms them, the memory is weakened, sleep is interrupted and disturbed by frightful dreams, or hallucinations of sight and hearing, or a persistent true chronic delirium may exist.

> "Who drinks, alas! but to forget, nor sees
> That melancholy, sloth, severe disease,
> Memory confused, and interrupted thought,
> Death's harbingers, are latent in the draught,
> And, in the flowers that wreathe the sparkling bowl,
> Fell adders hiss, and poisonous serpents roll."

In connection with the paralytic condition that has been described, there exists a diminution of sensibility which is a marked symptom. It commences with a bluntness of tactile perception, but extends to all points. Indeed, a permanent anæsthetic influence pervades the entire system, and, what is worthy of note, the natural propensities are obliterated. The venereal passion, as we have frequently noticed, disappears, as well in females as males, and, happily, procreation is thus prevented.

In addition to the features of the picture that has been drawn there are some symptoms which although not so frequently present should not be omitted. Instead of a diminution of sensibility there may be an augmentation of it, or a species of hyperæsthesia. While one condition may exist in a part the other may be present in a different portion; thus there may be loss of sensibility in the toes, but an exaggeration of it in the sole of the foot. Sensations of formication, glacial cold, alternating with burning heat in the limbs or feet with localized neuralgia, are sometimes present. Another manifestation of alcoholism is found in the tendency to convulsive attacks. With drunkards the occurrence of fits is not unusual, and this tendency may assume the epileptic form. Indeed, epilepsy and, as the record of insane asylums indicate, mania, are the melancholy consequence of intemperance. The subject of the connection between intemperance and crime is one which has much exercised the thoughts of the philanthropist; it should also attract the attention of the legislator to a greater extent than it has hitherto done. The facilities of indulgence are scattered broadcast throughout the land, and from the examination of our legislative enactments, on the inspection of the social relations and practices which are prevalent, we are led to the conclusion that inducements to the abuse of alcohol are afforded liberally by the first, and allurements of the most captivating kind are presented by the latter. Viewed in whatever light it may, as an injury to the State and to society from the crimes that may be perpetrated, or as a canker preying upon and destroying the holy affections of the family circle, it must be regarded as a baneful evil, with which morality and religion have been unsuccessful in the struggle, and against which medical science has in vain suggested remedies. With respect to the effects upon civilization we may conclude this notice by quoting the words of M. Bouchardat: "That the progress of humanity will not only be checked by addiction to the abuse of ardent spirits, but there is eminent danger of its march becoming retrograde."

J. C.

ART. XXVI.—*The Use and Abuse of Tobacco.*—By JOHN LIZARS, late Professor of Surgery to the Royal College of Surgery, etc. etc. From the eighth Edinburgh edition. 12mo. pp. 138. Philadelphia: Lindsay & Blakiston, 1859.

To determine with anything approaching to accuracy the influence upon the human organism of the habitual use of tobacco, whether in snuffing, smoking, or chewing, will require a far more extended and carefully conducted series of observations than we now possess. In the brochure before us, Mr. Lizars has presented, it is true, an imposing array of testimony, which, at first sight, would seem to prove very conclusively that the habitual use of tobacco is not only productive of some of the most serious and intractable maladies to which man is liable, but that, even when it does not give rise to actual disease, it invariably undermines the vigour of the constitution of those who are addicted to it, destroys their memory, hearing, and vision, and is the cause often of emasculation and cowardice. When, however, we come to examine the quality of the evidence thus adduced, and subject it to a careful analysis, it will be found that much of it consists of mere opinion, based upon one-sided and partial observations, and of isolated facts which admit of an easy explanation very different from that which Mr. Lizars is inclined to give to them.

We can scarcely be required to receive as valid testimony, in respect to the effects of the habitual use of tobacco, the statement of "Dr. Budget," in his treatise on tobacco, quoted by Mr. Lizars, on the 41st page of his essay—which is, that in America "it is no uncommon circumstance to hear of inquests on the bodies of smokers, especially youths; the ordinary verdict being '*died from extreme tobacco smoking!*'" Nor a whit more valid is the following libel upon the American people, gravely quoted by Mr. Lizars, on his 62d page, as a pathological fact, from the *London Spectator* of July 5, 1856: "It is in startling contrast with our ordinary train of thought about the United States, to hear it even whispered as a possibility that the race of men which inhabit that country is undergoing a process of physical and moral degeneration; that the symptoms which we have been accustomed to consider as evidences of growth, are real proofs of decay; that the people are, like medlars, rotten before they are ripe, and that a premature senility is the true characteristic of the great Anglo-Celtic Republic of the West; that such a theory should have been started gives one a shock which does not pass off when the facts upon which it professes to rest are calmly considered. It is said, for instance, that the bulk of Americans live thoroughly unwholesome lives; consume inordinate quantities of spirituous liquor from youth upwards, and at all hours of the day, *smoke and chew tobacco* to excess; eating greedily, and giving themselves no time to digest their food; always in a bustle and excitement; enjoying neither quiet nor rational recreation, nor domestic peace. And how few Americans has any Englishman known, of whom he could say that they were genial or happy! What an *anxious, nervous, haggard expression of face, is that by which we instinctively recognize a Yankee everywhere!* How completely the manners and countenance, and figure of the typical Yankee answers to the account of the *usual life* of the people. What if the bad habits of men and women, acting with *a climate which tends to exhaust vitality*, should really, in a few generations, have produced a palpable inferiority of physique? The positive assertion of this degeneration would, indeed, be most unphilosophic, on a basis of facts such as are patent to common observation; but *that these facts are patent* is sufficient to excite the alarm and sharpen the self-watchfulness of all classes of Americans, who can look forward to the tremendous consequences of a degradation of the national nerve and muscle through intemperance and bad habits of living."

Such is a specimen of one class of facts upon which Mr. Lizars bases his verdict against the habitual use of tobacco. He would seem to estimate as alike in value all denunciations of the "foul weed," as King James denominates it, from whatever source they emanate. He has been very industrious certainly in bringing together the opinions which have been uttered against tobacco, and yet he has overlooked not a few more pointed even than those he has collected, and bearing the appearance of much greater exactitude than do many of them.

We would not for a moment be considered as advocating the use of tobacco in any form, or to any extent—in moderation or to excess. It must be manifest to every one who has made himself acquainted with the active toxical properties of tobacco, that it cannot be introduced into the healthy living organism, even in very minute quantities, without deleterious consequences resulting; and that these must necessarily be more decided and serious when the article is habitually indulged in. Consequences which, though they may be reduced in speediness of occurrence, and in their intensity, by certain processes to which the tobacco is subjected to fit it for man's use, nevertheless sooner or later make their appearance—effectually subjugating their prey before he is at all aware that his health and strength are completely and too often irrecoverably gone. The exact nature and extent of the deleterious influences which tobacco exercises over its votaries have never yet been carefully investigated, care being taken to exclude all the more prominent sources of error. There has been as much error committed by those who exaggerate the baneful effects of the habitual use of tobacco in chewing, snuffing, and smoking, as by those who, on the other hand, have endeavoured, in our day, to show that tobacco habitually but moderately used is absolutely beneficial to man, by retarding the metamorphosis of his tissues, and thus enabling him to bear up for a time under the depressing effects of deficient diet, or the wear and tear of violent and prolonged muscular exertion. Neither verdict is the true one.

To prove that man may live healthful and vigorous, and bear up under fatigue and privation without the aid of tobacco in any form or quantity, there can be adduced an overabundant mass of positive and indisputable testimony; while, on the other hand, it must be very evident that, in the production of much of the evil that has been attributed to the habitual use of tobacco, it constitutes only one of several, perhaps many, morbific causes. They who are in the constant habit of excessive indulgence in the use of tobacco, by smoking, chewing, or snuffing, most commonly belong to a class of the community by whom the laws of health are not the most implicitly observed, and who incur disease by exposing themselves habitually to other morbific causes than simply an indulgence in the use of tobacco.

We are fully persuaded of the truth of the following general conclusions to which Mr. Lizars has arrived in respect to the effects of one of the most common forms in which tobacco is used in this country:—

"1st. That excessive *smoking*, long persisted in, is injurious to man in the highest degree—physically, mentally, and morally.

"2d. That the commencement of *smoking in early life*, and indulgence in the practice *early in the day*, cannot be too strongly condemned, as leading to most pernicious effects on the constitution.

"3d. That smoking even in what is called a moderate degree is, to say the very least of it, indirectly injurious, more especially to the young; because, it is not denied, it acts as an inducement to drinking—thus becoming the source of intemperance, and all its accompanying evils. It is notorious that the practices are, almost without exception, inseparably associated."

Although these conclusions relate only to the practice of tobacco smoking, they will apply also to the use of the article in chewing and snuffing. Either of the latter practices, commenced early in life and largely indulged in, is productive of most pernicious results—Dyspepsia, nervous tremors, etc., are of common occurrence in tobacco chewers, while carcinoma of the stomach has in repeated instances been traced to the use of tobacco in the form of snuff.

As to the direct agency of the habitual use of tobacco in the production of some of the maladies which are attributed to it by the authorities quoted by Mr. Lizars, we are still without the amount and kind of evidence necessary to establish the fact beyond any reasonable doubt. That it often acts as a co-agent in the establishment of certain morbid states and conditions is, we think, a very well established fact.

Upon a review of all the well attested observations that have been adduced in reference to "the use and abuse of tobacco," we can very fully indorse the advice which constitutes the motto of the treatise before us: "Snuffing, smoking, and chewing tobacco are bad habits, and we advise any gentleman, who is not hopelessly abandoned to either, to give it up." D. F. C.

QUARTERLY SUMMARY

OF THE

IMPROVEMENTS AND DISCOVERIES

IN THE

MEDICAL SCIENCES.

ANATOMY AND PHYSIOLOGY.

1. *Spontaneous Generation.*—Joly and Musset think that the following experiment leaves but little doubt as to the existence of spontaneous generation. They boiled in ordinary water the cæcum of two sheep, along with pieces of meat, during one hour. The cæcums were then filled with that same water when still very hot, and a piece of the boiled meat was introduced into each. To secure a supply of well-filtered air, three-quarters of the fluid was displaced by purified hydrogen gas; the cæcums were shut by means of firmly-tied ligatures and were put into water. After several hours, diffusion had changed the contents of the gut. The hydrogen was replaced by filtered air. At the end of twelve days, during which the preparations were kept at a temperature varying from 3° to 25° C., the bags were opened, and were found to contain a number of very lively infusoria.

Schröder, on the other hand, after numerous careful experiments, arrives at the following conclusions: 1. All vegetable and animal forms derive their origin from other living vegetable or animal beings. *Omne vivum ex vivo.* 2. Germs which have been conveyed to a spot through the medium of the air are always the origin of the series of specific products of fermentation and putrefaction which is developed there. Such is most certainly the case with germs of mould, with the ferments of wine, milk, and urine. 3. Vegetable and animal matter in which all germs have been destroyed by boiling, and which, when hot, has been shut off from the direct influence of the external air by means of cotton-wool, remains perfectly free from mould, fermentation, or putrefaction. The germs which would be supplied by the air are arrested in its passage through the cotton-wool. 4. The germs of most vegetable and animal substances are destroyed by boiling during a short time at a temperature of 100° C. 5. But milk, yelk, and meat contain germs which are not thus killed. Boiling at a higher temperature, under higher pressure, or long-continued boiling at 100°, will, however, always suffice to destroy these germs also. 6. The germs in milk, in yelk, and in meat, after having been boiled at a temperature of 100° C. during a short time, are still capable of being developed into the specific ferment of putrefaction, and sometimes also those in yelk and meat, at least, into long and indolent vibriones. 7. The specific ferment of putrefaction is of an animal nature. It develops and multiplies at the expense of albuminous compounds, but does not multiply under conditions which afford all the requisites for vegetable growth.—*Brit. and For. Med.-Chirurg. Rev.*, Jan. 1863, from *Comptes Rendus*, Jan. 1861, and *Annal. der Chem. und Pharm.*, vol. cxvii. p. 273.

2. *Researches on the Physiology and Pathology of the Cerebellum.*—MM. Leven and Ollivier endeavoured to gain accurate information on the functions

of the cerebellum by puncturing that organ with a strong steel needle. The experiments were performed on guinea-pigs, and only such cases were relied upon in which no hemorrhage took place after the operation. If in such cases the injury was entirely confined to the cerebellum, the animals recovered completely in seven to fourteen days; but if, in addition, the medulla oblongata was wounded, death was sure to follow within twenty-four to forty-eight hours. In simple lesion of the cerebellum, the only and invariable changes observed were such as occurred in the functions of the motory apparatus. In most instances in which one lobe only was punctured, the animal was drawn with an irresistible force towards the injured side. It at first revolved with great rapidity round its axis. These movements then got slower by degrees, till at last the creature succeeded in finding rest by lying down on the punctured side. This position was anxiously retained, as if the animal was all the while conscious of the impelling force. The writers explain the yielding to this one-sided impulse by assuming that the muscles of the body, on the side opposite to the wounded lobe, are to some extent paralyzed. Strabismus was a constant symptom of the injury.—*Brit. and For. Med.-Chirurg. Rev.*, from *Comptes Rendus*, vol. lv., 1862.

3. *The Specifically-Acting Principles of the Natural and Artificial Pancreatic Juice.*—The researches of ALEX. DANILEWSKY led to the following results: 1. The natural and artificial juice of the pancreas shows, outside the organism, three specific physiological reactions: (*a*) it changes starch into sugar; (*b*) it dissolves in a characteristic manner coagulated albumen; (*c*) it reduces the neutral fats into their corresponding acids and glycerine. 2. Each of these reactions depends on a specific substance. 3. Two of these substances, the two, namely, which effect the first and second reaction, can be gained in a more or less pure form. 4. The existence of a third substance which effects the third physiological reaction of the juice is highly probable. 5. The specific substance which corresponds to the first reaction, acts in a neutral, alkaline, and acid solution, but with different degrees of intensity. 6. The digestion of fibrin in normal, natural, and artificial pancreatic juice, and in a solution of the isolated substance which corresponds to the second reaction, has nothing in common with a process of putrefaction, but is effected by a physiological property of the juice, and more especially of the isolated specific substance. 7. This last-named substance exerts its power of digesting fibrin only in neutral and alkaline solutions. 8. The amount of free alkali contained in the solution of the pure specific substance has a great influence on digestion. 9. A surplus of free alkali and the presence of free hydrochloric acid do prevent the digestion of fibrin in a solution of the specific substance. Danilewsky states, further, that the first and second specific substances are not pure albuminates, but that they belong to the colloidal matters.—*Brit. and For. Med.-Chirurg. Rev.*, Jan. 1863, from *Virchow's Archiv*, vol. xxv. p. 279.

4. *Action of Electricity in the Metamorphosis of Organic Substances.*—Herr VAN DEEN has for some time carried on a series of researches with the view of ascertaining whether the chemical changes which take place in the animal body can be produced artificially by subjecting the materials to be changed to the influence of an electrical current. He has therefore submitted to a continuous current various substances which form part of the body or are used as food: viz., serum of blood, milk, urine, albumen of eggs, biliary and urinary acids, glycin, starch, dextrin, sugar, glycerin, etc. He here relates especially the result of his experiments on uric acid. A little uric acid (which is ascertained to be free from urea) is mixed up in a large quantity of water, so that a part is dissolved. The apparatus employed consists of two elements of Bunsen's pile, with platinum electrodes, which are immersed (being separated by a piece of glass) in the vessel containing the substance. In ten or fifteen minutes, even though the current has been weak, urea can be detected. If warm water be added, the action becomes more rapid and intense. The quantity of urea formed is in direct relation to the time during which the current has acted on the uric acid. If the current were continued for a sufficient length of time, he found distinct crystals of urea, the nature of which he confirmed by forming nitrate of

urea. He believes that carbonic and oxalic acids are formed with the urea, but is not positive on this point, although he sometimes found crystals resembling those of oxalate of urea. (*Archiv. für die Holland. Beiträge zur Natur- und Heilk.*, Band 3, Heft 2, 1862.)

In the same number is contained a summary of the results of Van Deen's experiments. He has obtained by means of the continuous current—1, from *albumen;* cells resembling cytoid corpuscles; a substance insoluble in water (fibrin?); urea; allantoin; and uric acid (very probably): 2, from *mucus;* morphological elements; uric acid; and urea: 3, from *uric acid;* urea and allantoin: 4, from *glycin;* urea: 5, from *thein*, urea: 6, from *glycerine;* sugar and lactic acid: 7, from *inosite;* lactic acid: 8, from the *lactate, formiate, acetate*, and *butyrate of lime;* carbonate of lime and water: 9, from *tartrate of lime;* carbonate and oxalate of lime: 10, from *gum;* carbonate and oxalate of lime, and water: 11, from *mannite;* sugar: 12, from *amygdalin;* sugar; hydrocyanic acid; and probably volatile oil of almonds: 13, from *tannic acid;* sugar and gallic acid: 14, from *salicin;* sugar and saligenin or saliretin. Electricity has no influence on starch, dextrin, glycogen, or sugar. He has also subjected various substances to the action of ozone, with the following results: 1, from *uric acid;* urea and allantoin: 2, from *glycin;* urea: 3, from *glycerine;* sugar, and very probably lactic acid. Ozone appears to have influence on starch. Nitric acid and heat produce sugar from starch, the *corpora amylacea*, mannite and gum. The fresh pancreas of a dog, whether the reaction was or was not acid, produced fatty acids, glycerine and sugar from butter; and sugar from glycerine. At a temperature of 104° Fahr. calves' liver produced glycogen and sugar from glycerine, sugar from starch, and, at the ordinary temperature sugar from dextrin.—*Brit. Med. Journ.*, Jan. 17, 1863.

—

5. *Effects of the Preparations of Iron on the Tissue-change.*—Dr. Pakrowsky, of St. Petersburg, has directed particular attention to the effects of iron on the tissue change, in patients at the hospitals at St. Petersburgh, who were taking that article for different diseases. He measured daily in all the patients the temperature of the body, the amount of the food consumed, the amount of the excrements, and of the urine, with the specific gravity of the latter, and the amount of chlorides and urea it contained.

The following are his conclusions:—

1. The temperature of the body is positively heightened by the use of these preparations.

2. This increase results in some cases very soon; in one case it occurred after five hours; in others slower, and in one case a long interval and after a large dose.

3. The temperature, the morbidly lowered as well as normal one, is increased; and if it ceases to rise after reaching a certain height, having taking a certain quantity of the iron, the temperature will rise more by increase of the dose.

4. Several days after using it the pulse rises also, although not in all cases.

5. Very soon, and consequent upon the increase of the temperature, the daily amount of urea in the urine increases.

6. The use of iron increases the weight of the body.

7. Every preparation of iron produces the same effect, and a change in the different preparation in the same patient does not alter the result.

8. The diuretic effect of citrate of iron was very distinct in two cases, but was wanting in three under the same conditions.

9. In all cases where iron was used no constipation of the bowels took place, except a slight one after iodide and lactate of iron. It was borne well, and in large doses, by the digestive apparatus (nine grains pyrophosphate of iron, and fifteen grains ferrum hydragenio reductum).

10. Dropsical transudations in the subcutaneous cellular tissue were resorbed by the use of iron, even in patients with insufficiency of the mitral valve, and reappeared after stopping with the remedy.

11. The increase of the heart's impulse and the dyspnœa in patients with organic cardiac diseases disappeared even in cases in which digitalis had done nothing.

12. After the normal temperature of the body had been raised by the use of iron, it lasted a considerable time after stopping with its use before returning to its normal condition; whilst the morbid lowered temperature rose quickly by the use of iron, it fell just as quickly by stopping with its use—at least, where the other pathological symptoms continued, and where consequently the cause of the low temperature was not cured.

Referring to these facts, the Doctor lays down the following maxims: Taking into consideration that the temperature of the body and the quantity of urea in the urine is increased by the use of iron, that the œdematous condition disappears and the weight of the body is augmented, we are fully justified in ascribing to the iron a nutritive power. The increase of temperature indicates a stronger tissue-change, for this is constant, and accompanied by other symptoms indicating a heightened nutrition. How this is brought about it is difficult to say. Increase of the blood quantum or of the blood corpuscules cannot be the cause; both increase very slowly, whilst the change of tissue augments very quickly. Neither can the increase of the pulse explain the elevated temperature, as the first succeeds the latter. The respiration is not altered by the iron, hence can not have an influence upon the temperature.

According to Dr. Pakrowsky, we have, therefore, to look for the effect of iron in the finest arterial and capillary system, one of the most important places of nutrition, and the growth of the tissue and organs, and so much more, as the disappearance of dropsical transudations in the subcutaneous cellular tissue after the use of iron, points to that system. The most probable is the supposition that the iron acts upon the contractile elements of the finest arterial branches, which must have, without doubt, a high and important influence upon the capillary circulation, and, namely, upon the degree of the tonics, *i. e.*, the degree of tension of the walls of these ramifications. The iron must consequently alter the conditions of the diffusion of the elements composing the tissue and organs. Only in this way does it seem possible to explain the quick effect of iron upon nutrition and the resorption and the œdematous transudations.—*Cincinnati Lancet and Observer*, July, 1862, from *Virchow's Archiv*, xxii., 1861.

—

6. *Experiments on the Influence of Ozonized Air upon Animals.*—Dr. W. W. IRELAND relates (*Edinburgh Med. Journ.*, Feb. 1863) some carefully performed experiments instituted to determine the influence of ozonized air upon animals. The following are his conclusions:—

1. Ozonized air accelerates the respiration, and, we may infer, the circulation.
2. Ozonized air excites the nervous system.
3. Ozonized air promotes the coagulability of the blood, probably by increasing its fibrin. In the blood, however, ozone loses its peculiar properties, probably entering into combination with some of the constituents of the circulating fluid.
4. Animals can be subjected to the influence of a considerable proportion of ozone in the air for hours without permanent injury; but in the end ozone produces effects which may continue after its withdrawal and destroy life.

MATERIA MEDICA AND PHARMACY.

7. *Albuminate of Iron and Soda as a Therapeutic Agent.*—M. ANGELICO FABRI says that simple contact, at the ordinary temperature of the atmosphere, of white of egg with a salt of iron and soda, is capable of instantly producing a soluble albuminate of iron and soda, or an albuminferate of the alkaline base. The chemical combination of this compound is such that it is not altered by the yellow ferrocyanide of potassium, the most delicate test of the salts of iron, unless a few drops of acid—as, for example, hydrochloric—be previously added to the soluble albuminate, thus proving that this decomposition cannot be

affected by the agency of the alkalies, but only by some acids, since the potassium of the cyanide is not able to displace the oxide of iron, becoming oxidized at its expense, and setting the metal free, as occurs with the other ferruginous preparations. Considering that we find in the blood albumen, soda in excess, and iron, and having shown how these three bodies, by simple direct contact, form a soluble salt, the chemical combination of which is so powerful that it is not destroyed by the most delicate reagent, may we not fairly infer that the iron exists in the blood as an albuminate of iron and soda? and would it not, therefore, be reasonable to administer iron in the various diseases in which it is prescribed, principally in reference to the state of the sanguineous system, in the form of albuminate, as that in which nature itself has placed it within our organism—one of the products, so to speak, on which our life depends? Physicians have been long puzzled, and are still at a loss, how to administer iron, a valuable remedy, in the manner most suitable to the internal organism; hence the great number of preparations of this metal. Some object to its saline combination with mineral acids, on the ground that these are inorganic, and they prefer giving it in the metallic or oxidized state, leaving the acids of the stomach to form with it compounds which may be carried into the circulation. Others, unwilling to run the risk of having the greater part of the iron—little or not at all acted upon—expelled with the feces, prescribe it in the same state, but combined with organic vegetable acids; hence we have the malate, tannate, citrate, etc., of iron. Others, still more scrupulous, wish to have it united to acids of an animal nature, and prefer the lactate, the cyanide, etc.; M. Fabri would recommend its employment in the state of albuminate of iron and soda.—*Chemical News.*

8. *Arsenite of Cafeine and Tanno-Arsenic Acid used as Antiperiodics.*—M. Gastinel, Professor at the School of Medicine of Cairo, has presented to the Egyptian Institute two new arsenical compounds—viz., arseniate of cafeine and tanno-arsenic acid, both perfectly crystallized, and having a well-defined chemical constitution. M. Schnepf, sanitary physician at Alexandria, has lately studied the therapeutical action of these two compounds, and the following are some of the cases which he has recorded. The first case was that of a man, forty-five years old, who had just had two paroxysms of fever. A cathartic and emetic were first given, and produced vomiting and purging; then on the next morning he took twenty centigrammes of tanno-arsenic acid in some water, in doses of one centigramme every quarter of an hour. This was on the day when the paroxysm was expected to return, but it was almost entirely absent, the patient complaining, however, of a little frontal headache. The dose was repeated on the two following days, and there was no return of the fever, and after a short time the patient entirely recovered. In another case the patient was a man about forty years old, attacked with a tertian fever. On the day when the fever was absent he took twenty centigrammes of tanno-arsenic acid. The paroxysm did not return on the following day, and the arsenical compound was continued for two days longer. The patient complained of loss of appetite for a few days, but soon recovered entirely. The third case was that of a man fifty years old, suffering from a quotidian fever. The first attack surprised him suddenly in a violent manner, and was attended with great prostration. The next day an emetic was administered, but the paroxysm returned. After the remission, on the third day, twenty centigrammes of the tanno-arsenic acid were given, and the paroxysm did not return, although some headache remained, with wandering pains in the stomach. Twenty centigrammes more were given, and the fever never reappeared, but there remained a prolonged dislike for food, and a painful sensation at the epigastrium. Gradually, however, the appetite returned, and the man became quite well.—*Brit. and For. Med.-Chirurg. Rev.*, Jan. 1863, from *Gazette des Hôpitaux*, Jan. 1862.

9. *Action of Digitalis.*—Dr. Fuller, in his recent work on "Diseases of the Chest," asserts that the general notion that digitalis exercises a depressing influence over the action of the heart, and therefore leads to accumulation and

coagulation of the blood in its cavities, if not actual paralysis of its muscular structure, is erroneous. On the contrary, he affirms that digitalis stimulates the muscular fibres of the heart, and augments the contractility of the capillaries; that when it kills, it is not by paralysis, but by tonic contraction and spasm of the heart; that, such being the case, it is a valuable remedy in dilatation, and dangerous only when administered in hypertrophy. The grounds given by Dr. Fuller for these opinions are those stated by the author (p. 592):—

"1st. During many years, I have observed that the cases of heart disease most benefited by digitalis have been those in which the heart has been weak and dilated, and the pulse feeble and irregular. In these the pulse has become stronger and steadier, and less frequent under its action.

"2d. In the only cases in which I have known death to occur suddenly during the administration of digitalis, the heart has been hypertrophied and firmly contracted. This may have been a coincidence, but, viewed in connection with the results of experiments to which I shall presently refer, it is, at least, a suspicious fact.

"3d. Dr. Dickenson has pointed out (*Med.-Chir. Trans.*, vol. xxxix.), and I have repeatedly verified his observations, that digitalis, if given in full doses, induces violent uterine contraction, and checks uterine hemorrhage; and, inasmuch as its action in staying menorrhagia and uterine hemorrhage is permanent, it seems fair to conclude that it gives tone to the capillaries, and increases their contractility.

"4th. This view is borne out by what I have long since observed relative to its action in arresting hæmoptysis, viz., that, whilst effecting the object required, it does not weaken but rather increases the force of the pulse, though it lessens its frequency.

"5th. When patients die of delirium tremens, the pulse is usually rapid and fluttering before death, and the heart is found weak, flaccid, and distended with blood afterwards. These are just the cases in which, on the commonly-received doctrines as to the action of digitalis, the drug ought necessarily to prove fatal, and yet modern experience has shown that in these cases it is tolerated, even in excessive doses. My impression is, that its remedial action in these cases depends on its stimulating the heart, subduing its irritability, and increasing the tonicity and contractility of the heart and capillaries, so that the brain is better supplied with blood, and the effusion of its more fluid parts, which gives rise to the 'wet brains' of habitual drunkards, is avoided.

"6th. It has been proved by experiments on animals (Dr. H. Jones) that when death is induced by digitalis, the heart is not flaccid and distended with blood, as is commonly supposed, but, on the contrary, empty, contracted to the utmost, and in a state of tonic spasm. All these facts confirm my view as to the action of digitalis; and if it is correct, its practical importance in relation to the treatment of cardiac dilatation can hardly be over-estimated."

—

10. *Internal Exhibition of Atropia and of Strychnia.*—Dr. ALEXANDER FLEMMING recommends (*Edinburgh Med. Journal*, January, 1863) solutions of atropia and of strychnia for internal use, as being safer and more efficient than the Galenical preparations of belladonna and nux vomica.

The solutions of both alkaloids which he employs are so proportioned in strength that ten minims (by measure) is the ordinary commencing dose.

This solution of atropia is made thus: "Atropiæ 1 grain; distilled water, 5 drachms. Dissolve *thoroughly* with the aid of a few drops of dilated muriatic acid, and add of rectified spirit sufficient to make 10 drachms. This solution keeps well, and is of uniform strength. The tincture and extract of belladonna, however carefully prepared, vary much in power. I have found the tincture of one chemist seven times the strength of the same preparation from another and equally respectable chemist; and the extract is even more uncertain. The internal, and at the same time efficient, use of these preparations is for this reason very unsafe.

"The solution is so proportioned that 10 minims, containing 1-60th of a grain of atropia, is the commencing dose for the adult. It should be given in a little water, once daily, at bedtime, and on an empty stomach. The dose is increased

daily by 2 or 4 minims until a slight degree of the early physiological effects—dry throat, wide pupil, and dim sight—is produced. This is attained with much precision and safety; but it may be necessary to increase the dose to 30, 40, and 50 minims, according to the strength of the patient. For children of one year and all ages under one year, the commencing dose is 1 minim, of two years, 2 minims, of three years, 3 minims, and so on up to ten years, when 10 minims may be given. In verifying the commencing doses for children I have been assisted by my late pupil Mr. Burnie, House-Surgeon of the Children's Hospital of this place.

"The commencing doses here indicated for children and adults are all fixed below what may be given with propriety in the majority of cases. While weak persons are readily influenced by atropia, much larger doses than those indicated are necessary in strong subjects, in whom, therefore, a few days are usually lost in the commencement of treatment before the requisite dose is attained. In the diseases in which I use atropia, as epilepsy, asthma, constipation, and hooping-cough, this delay has no practical inconvenience. It is perhaps not superfluous to note here, that by minims I mean minims by measure. Ten minims of this solution of atropia are equal to eighteen drops, in which form it ought not to be prescribed. I generally order the solution alone, and direct the patient to be supplied with an Alsop's minimetre to measure the dose.

"I give it *once* daily. The action of one dose does not subside completely for sixteen or eighteen hours, and if a second be given before the effects of the first have passed away, we risk the production of cumulative action. When so exhibited the degree of action is less under control, and we may induce unexpectedly an alarming amount of atropism. The cumulative exhibition of atropia is not required to secure any of its therapeutical indications. It must be given *on an empty stomach*. The dose of atropia requires for its due action to be promptly absorbed; mixed with the contents of a full stomach it enters the system very gradually, and manifests its usual effects very imperfectly, or not at all. This is one reason why the drug, when taken into the stomach of the rabbit, has no action. It meets there always a large quantity of food, and, mixing with it, enters the system very gradually. The kidneys, meanwhile, are busy eliminating it with the urine, and the atropia is never present in the body in sufficient force at any one time to cause its physiological action. Several experiments have satisfied me that this explanation applies to some at least of the other examples of the immunity of grassfeeding brutes to certain poisons. Their stomachs are always full. Lastly, I give the solution *simply diluted with a little water*, that it may pass quickly and easily into the blood. Atropia should never be given in pill, which may undergo solution very slowly or not at all, when two or three pills accumulating in the stomach or bowels may, from some change in the gastro-intestinal fluids, be suddenly dissolved and excite severe atropism.

"Atropia is sometimes employed internally in the form of valerianate, but this is not a convenient preparation. The valerianate is a very deliquescent salt, and forms a gummy mass, which it is difficult to weigh with accuracy. Moreover, it is a delusion to suppose that the valerianic acid represents in any sense the valuable medicinal properties of the valerian.

"The solution of strychnia which I use is made thus: Strychnia, 2 grains; distilled water, 5 drachms. Dissolve the strychnia *thoroughly* with help of a little diluted muriatic acid, and add of rectified spirit sufficient to make 10 drachms.

"This solution has the same advantages over the powder, extract and tincture of nux vomica, that the solution of atropia has over the tincture and extract of belladonna. It is uniform in strength, passes readily into the circulation, and the dose can be apportioned with accuracy. The commencing dose is 10 minims, and contains 1-30th of a grain of strychnia. When employed for its *tetanic* action the solution should be taken in the morning, half an hour before breakfast, and in half an ounce of water, and the dose increased 2 or 4 minims daily until a slight degree of the physiological action—stiffness about the jaws or neck, or spasmodic movements in the paralyzed muscles—of the drug is manifested, when no further increase should be made. As a tetanic it should

be given only once daily, to avoid the risk of cumulative action by giving a second dose before the operation of the first has entirely subsided. It is taken in the morning, so that its action may be over before bedtime, and the sleep is not disturbed. Lastly, it should be given on an empty stomach, and diluted with water to insure its prompt and easy absorption. Strychnia ought never to be given in pill. It is hard of solution in the weak acids of the stomach, and several pills may remain unchanged and accumulated there or in the bowels. A change in the secretions may then dissolve and transport them all simultaneously into the blood, and give rise unexpectedly to alarming tetanic symptoms. This is commonly the correct explanation of the so-called cumulative action of strychnia. It is the sudden solution and absorption of hard pills which have accumulated in the stomach or bowels.

"When the strychnia is employed as a *tonic*, the dose of the solution is 5 minims, and it may then be exhibited twice daily with safety and advantage."

—

11. *Recently introduced Preparations of Iron.*—Mr. HARRY NAPIER DRAPER gives (*Dublin Med. Press*, Dec. 31, 1862) the following account of three recently introduced preparations of iron:—

1. *Ferri et Quinæ Strychniæque Citras.* Citrate of quinia and iron with strychnia.

Preparation.—

Citrate of iron and quinia .	980 grs.
Crystallized strychnia . .	10 "
Citric acid	10 "
Water	10 fluidounces.

In nine ounces of the water dissolve the citrate of iron and quinia, and having dissolved the strychnia and citric acid in the remaining ounce by boiling, mix the solutions, evaporate to a syrupy consistence, and spread on plates to dry in scales.

Physical characters.—Exactly similar in appearance to the citrate of iron and quinia. Its taste is, however, more persistently bitter than that of this salt.

Chemistry.—This compound contains in each 100 parts, one part of strychnia, twenty parts of quinia, and seventy-nine of citrate of iron. The presence of strychnia may be detected in the residue from the evaporation of the chloroformic solution of the alkaloids by the usual colour tests.

Physiological action and therapeutical use.—Where the use of iron is not contraindicated, this salt and the one next to be described, furnish perhaps the safest, if not the best, means of exhibiting strychnia. Five grains contain one-twentieth of a grain of strychnia.

Dose—From two to five grains.

2. *Ferri et Strychniæ Citras.* Citrate of iron and strychnia.

Preparation.—

Citrate of iron	980 grs.
Strychnia	10 "
Citric acid	10 "

Proceed as in the case of the preceding preparation.

Physical characters.—Indistinguishable in appearance from the simple citrate of iron. Taste: acid, ferruginous, and persistently bitter; deliquescent.

Chemistry.—A combination of citrate of iron with citrate of strychnia; 100 parts contain one part of strychnia. The presence of strychnia may be detected by treating the dried and powdered salt with chloroform, evaporating and applying the usual tests.

Physiological action and therapeutical use.—This salt has been successfully employed in dyspepsia arising from atony, in chorea, and in suppressed menstruation.

Dose.—Three to six grains.

3. *Ferri et Zinci Citras.* Citrate of iron and zinc.

Preparation.—

Citrate of sesquioxide of iron .	4 ounces.
Carbonate of zinc . . .	1 ounce.
Citric acid	3 ounces.
Solution of ammonia, Water . . }	A sufficient quantity.

Dissolve the citric acid in ten ounces of water, and add the carbonate of zinc

gradually. Before the point of saturation is attained the solution will deposit the citrate of zinc as an insoluble powder. This is to be collected on a filter, and having ascertained by drying a weighed portion of the mass at 212° how much is equivalent to one ounce of dry citrate, this quantity is to be heated in a capsule with the citrate of iron and ten ounces of water. When the iron salt is dissolved, enough solution of ammonia is to be added to effect solution of the citrate of zinc, an excess of ammonia being avoided. The whole is now evaporated to a syrupy consistence, and spread on glass to dry in scales.

Physical characters.—Brownish-green scales. Taste ferruginous and slightly "metallic."

Chemistry.—This salt contains in addition to the citrates of iron and zinc, ammonia, and would therefore be more properly named ammonio-citrate of iron and zinc. Its composition as found in commerce is very variable.

Physiological action and therapeutical use.—This salt is occasionally employed as a tonic in cases where the use of iron is not contraindicated. As an elegant form of administering zinc it is worthy of trial in diseases of the nervous system.

Dose.—Two to five grains.

—

12. *Is Alcohol Food?*—Dr. Thomas Inman read before the 30th annual meeting of the British Medical Association a paper on this much disputed question.

The following is a summary of the facts which he considers that he has elicited:—

"1. Nature has provided in the salivary glands, the liver, and the lungs of every mammal, an apparatus for converting all food, especially farinaceous, into alcohol; and we have no evidence that such conversion does not take place.

"2. One form of alcohol or another is available for the support of life—and for restoration to health when no ordinary food is or can be digested.

"3. Alcohol, after being taken, is incorporated with the blood, passes into the various tissues, and ultimately disappears, a small portion only passing away in the breath. We can say no more of bread, potatoes, or oatmeal porridge, a small portion of each of which passes out of the body with the feces.

"4. Alcohol, in the form of ale, porter, wine, etc., relieves hunger and quenches thirst simultaneously, and with a completeness that is not equalled by water, infusion of gentian, cayenne pepper, or by turpentine; *i. e.*, it does not act as water simply, or as a stimulant alone.

"5. Wine, beer, etc., satisfy the appetite when taken alone, and act for some time like any solid food would do.

"6. When alcohol is mingled with other food, a less amount of the latter suffices for the wants of the system than if water had been used as the drink.

"7. The various forms in which alcohol is taken, have as marked and specific effects as have animal and vegetable articles of diet.

"Individuals have subsisted wholly upon one or other of the various forms of alcohol in common use for periods of great length; and, as it is illogical to conclude that they must have lived on air, without food, or on flies like chameleons, the conclusion is irresistible.

"What that conclusion is, we fearlessly leave every thinking man to decide."
—*British Med. Journ.*, Oct. 4, 1862.

MEDICAL PATHOLOGY AND THERAPEUTICS, AND PRACTICAL MEDICINE.

13. *Diseases depending on Morbific Fermentation, and their Treatment.*—In our number for Oct. last (pp. 513–15) we laid before our readers an account of some researches by Prof. G. Polli, regarding the therapeutic powers of a new series of salts, the sulphites. We find in a late number of the *Dublin Quarterly*

Journ. of Med. Sci. (May, 1862) a review of a most interesting monograph by the same Professor on zymotic diseases, strictly speaking; or on such diseases as date their existence from the presence of a fermenting or catalytic principle, either generated spontaneously in the system, or introduced from without. Not having yet received this monograph, and believing that the author's researches are of great importance, we extract from the above alluded to review the following notice of them:—

If the author's experiments can be relied on, and they seem to have been conducted with great sagacity and care, zymotic diseases would be no longer fatal, but would be as amenable to treatment as many other ailments of daily occurrence, and the remedies which cure those fatal diseases, when developed, would, in addition, seem to be capable of acting as prophylactics against them.

Dr. Polli commences his monograph by establishing the great importance of fermentation in catalytic actions; he says:—

"By catalysis, fatty principles which are insoluble are rendered soluble (glycerine, for instance); some bitter principles, as salicine, are rendered sweet (glucose); some inodorous substances, myrotic acid, for instance, are changed into odorous essences (oil of mustard); many neutral substances, as urea and allantoin, are changed into energetic alkalies (ammonia); some inert principles, or of weak nutrient capacity, as starch, are changed into inebriating substances (alcohol); and, finally, some principles of very slight action on the human economy, as amygdaline, are changed into energetic poisons (oil of bitter almonds and prussic acid.)"

Further on he says:—

"Different putrescible organic substances will, therefore, be capable of producing divers *morbific ferments*, or, perhaps, even the one organic principle, during different stages of its decomposition, may be capable of producing the same varied effects; and if, in a healthy animal, some such putrescible substance should be introduced, either by the lungs, the gastro-enteric tube, or by the cutis, or by injection, or by inoculation, such substance being in a state of decomposition, different from that which should correspond with a normal physiological metamorphosis, its introduction would give rise to serious disturbance in the composition of one or more of the fermentable components of the body; in such cases the *morbific ferment* would be introduced from without. But should the natural metamorphosis of the putrescible substances of our organism deviate from its normal course, either in consequence of atmospheric vicissitudes, great fatigues, insufficient exercise, mental anxieties, or in consequence of suppressed secretions or excretions, such deviations may give rise to compounds capable of effecting abnormal modifications in the putrescible components of our body, and in this case the *morbific ferment* would originate within the living frame. . . . . The change which takes place in the human economy, in either of these cases, is simply due to a catalytic action; I shall, therefore, for the sake of brevity, and also, at the same time to indicate their proximate causes, name all diseases arising in such manner *catalytic diseases*. Catalytic diseases are truly diseases of blood poisoning, for it is in the blood that the morbific ferments are generated, or introduced. . . . . I shall illustrate this operation by quoting some experiments of Schmidt (*Ann. di Chim. appl. alla Med.*, vol. xxiv. p. 59). Blood, fresh drawn from the vein of a healthy man, will not cause either sugar, urea, amygdaline, nor asparagine to ferment. If the same blood be left exposed to the air for a few days, a principle will develop itself in it which will be capable of determining alcoholic fermentation in saccharine substances; and after fourteen days' exposure another principle, capable of causing both urea and asparagine to ferment, will be formed. Such blood, however, kept ever so long, will not become capable of inducing amygdaline to ferment.

"Blood drawn from the veins of persons laboring under various diseases, including cholera, induces fermentation in a few hours, not only in sugar and urea, but also in amygdaline.

"From these experiments, I conclude that the albuminoids of the blood can, under certain conditions, undergo such change as to give origin to specific ferments which do not exist in normal healthy blood; and that during certain

diseases it not only has a greater tendency to produce these ferments, but will even give rise to others, both different and more active than such as would arise from the simple spontaneous alteration of normal blood.

"Experiments carefully practised on animals have given the following important results:—

"1st. That the injection of a certain quantity of pus into the circulation produces pyemia, and such diseases as are characterized by multiple abscesses.

"2d. That the injection of putrid matter produces septicemia, or those diseases recognized by the name of putrid infections, and which are characterized by typhoid gastro-enteritis.

"3d. That the injection of matter obtained from contagious diseases, glanders, for instance, will reproduce the same affections.

"The injection of from two to four grammes of corrupted human pus into the veins of a dog of medium size, and weighing about six or seven kilogrammes, almost always induces vomiting, after a few moments, often followed by alvine dejections. The dog looks stupid and weary, and stretches itself on its side, its breathing gets hurried, it will neither eat nor drink, and thus it remains for two or three days. If the lesser quantity (viz., two grammes) of pus have been injected, then the dog about the third day commences to improve; it will take a little food, will move itself a little, and altogether look more lively, and by the ninth or tenth day it will be so much better as to be considered quite convalescent; the wound also, through which the injection was practised, and which, at the commencement, had suppurated and spread itself, will now have begun to get small, and will show symptoms of cicatrization. If, however, the larger quantity (four grammes) shall have been injected, the dog will become daily worse, presenting all the symptoms and running through all the stages of typhoid fever; it will keep constantly lying down in its kennel, in a sort of stupor; it will take no food; it often suffers from bloody stools; the wound through which the injection was practised becomes livid and gangrenous, and the dog dies between the fifth and seventh day after the operation. At the *post-mortem* examination the gastro-enteric tube is found in a general state of inflammation, the mucous membrane of a dark red color, here and there dotted with puriform exudation, at times mixed with ulcerations, especially in the neighbourhood of the pylorus, and in the cæcum; the lungs are found full of ecchymotic spots, and the blood contained in the larger vessels and in the right cavities of the heart, is tarry and liquid.

"The injection of from one to three grammes of putrid blood into the veins of a dog, produces a typhoid disease, very similar to that produced by the injection of pus, but of much more serious character. If the lesser quantity be injected, the dog rarely vomits, but remains stupid and motionless, standing on its four legs, hangs its head down, and will remain so, at times, for hours; eventually it lies down, and for several days it will neither eat nor drink, the wound, during this time, becoming large, livid, and sanious. By slow degrees, in the course of eight or ten days, the dog improves, but during its entire illness its complete prostration of strength, together with its comatose state, fully recall to one's mind the characteristics of adynamic fevers.

"If, however, the larger quantity of putrid blood, viz., three grammes, have been injected, the dog both vomits and defecates, generally within a few minutes, and the successive conditions of stupidity, prostration, and coma are more strongly marked; the dog lies on his side, with his legs stretched out, as also his head and neck; the wound assumes a sanious and often a gangrenous appearance, and about the third, fourth, or fifth day after the injection, the dog dies. At the *post-mortem* examination the entire gastro-intestinal tract exhibits the appearance of a violent attack of gastro-enteritis, the mucous membrane of the stomach and the intestines being deeply injected, dark red, and in some spots ecchymotic and bloody, the most inflamed portions being the stomach, in the vicinity of the pylorus, the duodenum, and the rectum.

"The injection into the veins of a dog of the discharge collected from the nares of a glandered horse, even where only the small quantity of *half a gramme* is used, gives rise to the following phenomena. Immediately after the operation the dog generally vomits; this is followed by utter prostration of strength,

laboured respiration, distaste for food, rapid wasting away, the formation, here and there, under the skin and between the muscles, of numerous unhealthy (*marciosi, putrid*) abscesses, which, when laid open, exhibit a lardaceous base, analogous to syphilitic ulcers in the human body; after death numerous clots are found in the lungs much more numerous and better marked than in the case where pus was injected. These are not merely ecchymotic stains, but real clots, often softened in the centre, and even at times converted into purulent cavities.

"The summary conclusion of my experiments, of which I have now only given a slight sketch, is, therefore, that by means of injections into the blood, with the above-mentioned morbific matters, very serious and well marked forms of disease can be produced, exhibiting all the general characters of catalytic diseases."

Once admitted that catalytic diseases depend on the presence and action of specific ferments in the blood, the question then arises, whether it would be possible to neutralize them, and render them inactive, when once introduced or self-developed in the living body. Dr. Polli answers in the affirmative, notwithstanding the assertion of Claude Bernard (whom he calls the greatest living physiologist), who, after establishing the fact that fermentation may arise in the blood, and give origin to poisonous principles, which may, in their turn, produce certain grave accidents in the living frame, adds: "La neutralization des ferments *est impossible*, parce que pour cela, il faudrait changer les propriétés du sang à tel point, que la vie ne serait plus possible. (Leçons sur les éffets des substances toxiques et medicamenteuses, p. 99.)"

Dr. Polli believes that we possess in sulphurous acid, when combined with salifiable bases, a means of controlling and neutralizing morbid ferments in the blood of living animals, without in any way vitiating its qualities so as to render it incapable of maintaining life. After carefully studying the action of sulphurous acid on organic matters, and fermenting principles in particular, our author came to the conclusion that not only it alone, but also its combinations with earths and alkalies, such as the sulphites of soda, potash, magnesia, and lime, possess, in a supreme degree, the power of arresting all known organic fermentations and putrefactive metamorphoses of animal solids and liquids; and that its action does not depend on its decomposing the fermenting principle, but simply by modifying its molecular aggregation, so that it never acts as a poison on the living organism, as do many other substances, well known for their antiseptic properties, but which, on account of their poisonous effects, cannot be employed with safety. He says:—

"I made several experiments with healthy dogs, for the purpose of determining the quantity of sulphites of soda, potash, magnesia, or lime which could be safely administered, and I found that a dog weighing from seven to eight kilogrammes, could not only take with perfect safety from one to fifteen grammes of such salts, but also without the slightest inconvenience; and a dog of about the same weight took during fifteen successive days as much as ten grammes of these salts daily. Sulphite of lime appears to be even better tolerated, as on one occasion I gave to a dog of about eight kilogrammes weight as much as fifteen grammes of it at a dose, and it did not appear to suffer the least inconvenience. I killed several healthy dogs during these experiments, for the purpose of examining the state of their stomach and intestines, and I constantly found them in a perfectly normal condition.

"Having thus determined the harmless action of these salts, I endeavoured to trace their course through the living organism, and determine, if possible, by what way and in what condition they are eliminated from the system, and I found that they remain as sulphites much longer than might have been supposed from their aptitude to become sulphates during the oxidizing process of life. I found *sulphites* in the urine for many hours after their ingestion, and not sooner than after a lapse of twenty-four hours did I find them in the urine as *sulphates*. The following experiment will prove interesting: I took three dogs in good health, and of about the same weight and stature; to one I gave fifteen grammes of sulphite of soda, in the course of twenty-four hours, one gramme at a time, wrapped up in a pellet of sausage meat; to another I gave fifteen grammes of sulphite of magnesia in the same way; and to the last I gave the same food, but

no sulphites. The three dogs were put to death at the same time; I collected the blood and the urine of each separately, together with the liver and one hind leg without the skin. I easily detected the presence of the sulphites in every one of the fluids and solids of the dogs to whom they had been administered, while I failed in detecting even a trace of sulphurous acid in the remains of the third dog. All these samples, liquid and solid, were then left exposed at a temperature varying from 12° to 15° centigrade, and and after five days the urine of the third dog exhibited a highly ammoniacal odour, and its liver and leg gave evidence, by their smell, of impending decomposition, while those parts which had been taken from the dogs who had received the sulphites still remained perfectly fresh.

"These results confirmed my theoretic opinions, and I concluded that if sulphites taken by the mouth could so modify the tissues of a living animal, as to give them the power of resisting for a longer period the putrefactive fermentation after death, so might the presence of these same sulphites in the living tissues enable them to assist during life the action of those morbific ferments which constitute the essence of catalytic disease."

In the *British Medical Journal* (Jan. 3, 1863) it is stated that M. Burggraeve has put into practice the theory of Dr. Polli—the employment of the sulphites in supposed cases of morbid ferments in the blood. M. Burggraeve has communicated to the Belgian Academy of Medicine his experience in the use of these agents in cases of wounds, abscesses, and burns. The sulphite of magnesia is administered internally—one *gramme* (fifteen grains), in a glass of sugared water four or six times a day. The sulphite of soda is employed externally, in lotions, etc. It produces, we are told, immediate local anæsthesia, which is particularly appreciated in burns, and allows of their being dressed and cauterized without pain. In sixty-five cases of wounds thus treated the effects produced were immediate; the wounds improved and became of a healthy colour; active granulation took place; the pus was scanty, inodorous, and tough as gluten. The application thus also acted as a disinfectant.

Dr. Lyell, of Fifeshire, in a letter in this last-named journal (Jan. 31, 1863) states that he has been induced by the experiments of Dr. Polli to try the sulphite of soda in diphtheria, and the improvement after the use of the salt was very marked. He dissolved half an ounce of the sulphite of soda in four ounces of water, and gave the solution in doses of a tablespoonful every four or six hours.

—

14. *The Fermentative Theory of Disease.*—In a recent clinical lecture on Puerperal Purulent Infection, M. Trousseau, in discussing the etiology of the disease, gives the following *resumé* of M. Pasteur's important observations relative to the origin of fermentations. The discoveries made by this *savant* concerning the organic corpuscles contained in the air furnish us with certain theoretical and practical facts worthy of consideration in relation to the etiology of purulent infection.

M. Pasteur's investigations of the doctrines of ferments and of spontaneous generation led him to conclusions totally different from those previously accepted in science. He noticed that all fermentations properly so called—the lactic, butyric fermentations, for example—were always associated with the presence and with the multiplication of organized beings. According to his views, the albuminoid matters do not constitute the ferments, but are the aliments supplying the materials of growth to the ferments. The true and actual ferments are certain organized entities. But, it will be asked, from whence are these organized beings derived? What is their source?

To learn this, M. Pasteur first of all proceeded to analyze the air, in order to ascertain whether or not these beings were present in the air. For this object, he made use of an apparatus which allowed a large quantity of air to pass through a peculiar kind of filter. The filter, which in fact was formed of gun-cotton, retained all the particles floating in the air, whether vegetable, animal, or mineral. The gun-cotton, thus charged with matters, was then dissolved in a mixture of alcohol and ether. The menstruum was then evaporated; so that,

after its volatilization, nothing was left except the collected aeriform floating particles, which could then be subjected to analysis chemically and microscopically. The dust thus obtained was found to contain starch, vegetable spores, and animals capable of revivification.

Further investigation showed M. Pasteur that the spores present in the acetic and butyric fermentations were of different species, recognizable by their particular forms.

M. Pasteur collected from different quarters, and under different conditions, diverse kinds, and preserved them in flasks of a peculiar construction. To propagate these spores, he placed them in liquids proper for their development—for instance, in an infusion composed of distilled water, sugar candy, tartrate of ammonia and ashes; and he found that, in the course of a few days, they were multiplied *ad infinitum*.

Now, for the multiplication of these organic bodies, it is evident that the requisite elements of nutrition must be supplied to them. The rudimentary plant, it appears, borrows from the infusion carbon and nitrogen, and in exchange it gives up oxygen, which, by union with other elements, occasions the different kinds of fermentations. Hence, then, we find that the spore is an organic living cell, which is nourished by, and vegetates at the expense of, the elements around it; and that certain determinate conditions of the medium in which the germs are placed are requisite for their vegetation. When these conditions are once determined, we may at pleasure, with the spores of the alcoholic, the acetic, or lactic ferment, obtain the alcoholic, acetic, or lactic fermentation. There are consequently spores special to each fermentation.

The spore, again, may be considered as an organic being, which, when placed in a medium containing the elements necessary for its life, its development, and growth, secretes alcohol and acetic or butyric acid, etc.; and in this way fermentation may be regarded as an organic function, every ferment being a germ, whose life is manifested by the presence of a special secretion.

May it not be the same in the case of morbid virus? May there not be ferments which, deposited in the body at a given moment and under certain determined conditions, manifest their presence by the multiplication of their products? Thus the variolous ferment may produce the variolous fermentation and its thousand pustules. Other virus may act locally, but at last modify the whole body. Thus, for instance, hospital gangrene, malignant pustules, and contagious erysipelas. And may it not be said that, in such cases, the organic ferment or matter may be conveyed by the lancet, by the air, or by the dressings?

Moreover, M. Chalvet, in his interesting researches into the causes of hospital insalubrity, has shown that the analysis of the air in the wards of St. Louis furnished him with a large quantity of starch-corpuscles; and that a large quantity of putrescible organic matter was collected in the bed-curtains, and on the walls, windows, etc. He also showed that the linen, as returned from the laundry, was still tainted with organic detritus, linseed, and spots of various kinds. May not linen thus stained with altered pus and blood be the vehicle of the contagion? We know that vaccine matter may be preserved on cotton or linen threads.

M. Chalvet has also shown that the vapour of water condensed in the neighbourhood of a suppurating focus is strongly charged with irregular corpuscles, resembling dried pus. Eiselt, of Prague, also asserts that he has seen small cells like those of pus spread through the air of a ward in which an epidemic of purulent ophthalmia was raging. On this point M. Chalvet says:—

"The atmosphere of a hospital is no longer a vague expression. The air of it differs essentially from pure air. In 1860 I witnessed the experiments of M. Réveil, and recognized in the most positive manner the presence of organic corpuscles in the apparatus constructed by that skilful chemist. We then observed chiefly cells and the *débris* of epithelial cells; corpuscles of divers forms, which became yellow under the action of nitric acid; and bits of charpie charged with these corpuscles. Under like conditions he saw, with M. Kallmann, in the laboratory of M. Réveil, organic *débris* incrusted with a granular substance, which gave the reaction of copper. The dust thus observed was collected in an ophthalmic hospital, where sulphate of copper was largely used as a caustic.

"Dust, collected by dusting the walls of the ward St. Augustine at St. Louis, furnished me with 36 per cent. of organic matter. At another period, in the laboratory of M. Réveil, dust collected from the same quarter yielded 46 per cent. of organic matters, which consisted in large part of epithelial cells, and yielded a horny smell when calcined.

"When wetted, the dusty powder quickly gives off a very fetid smell. Doubtless, the thick layer of dust covering the walls of our old hospitals may produce gases capable of favouring the transport through the air of corpuscles, which perhaps play a very important part in the air of hospitals."

May not, asks M. Trousseau, considerations of this kind furnish us with useful information regarding the etiology of diseases? There may, perchance, exist in the air at a given moment morbid germs, which will some day enable us to seize upon the cause of endemic and epidemic diseases.

"These germs will not be developed as readily in all patients, because the conditions of their reception vary infinitely. Some patients, like certain earths, will not receive certain germs. The wind may spread the same seed widely over a country, and yet the grain will not spring up everywhere alike. Here the soil may be too wet; there too dry; here other germs have grown up, and stifled the new seed. Just so is it with morbid germs and ferments. They, individually, require conditions favourable to their development."

Reasoning upon the facts supplied by MM. Pasteur and Chalvet, M. Trousseau argues, speaking of purulent absorption, that the existence of a wound, whatever its seat or its size, is a necessary condition of the affection; and the specific character of the pus, he believes (as does M. Robin), lies in its serum. And then, applying M. Pasteur's theory of vegetable spores in this domain of pathology, he asks: May not the analysis of the air of hospitals and of great cities one day show us the presence in it of morbific germs, analogous to vegetable sporules, which will grow and multiply whenever they meet with the conditions necessary or favourable to their growth and development—when, for example, they come into contact with wounds?

M. Pasteur's researches have upset the theory of spontaneous generation, and have shaken to its foundation the theory of multiplication by fermentations; and the recent experiments and observations of MM. Eiselt, Réveil, and Chalvet afford great support to the hypothesis above given of the origin of purulent absorption. The observations of these gentlemen show that in the hospitals of Berlin and Paris, the air around the beds of patients contains globules of pus, and filaments of charpie infested with putrid matters. Why may not epidemics, then, have their etiological source in morbid entities floating in the atmosphere? These different matters may act in different ways. Some of them may enter the respiratory mucous membrane, as perhaps do those of smallpox, cholera, and glanders. Others again—the purulent sporule, for example—may require a special entrance into the body—a wound. In such case the morbid force, the purulent or putrid sporule in contact with the wound may act like the vegetable sporule, which in contact with a special medium, produces carbonic acid, appropriating to itself oxygen, and thus multiplying very rapidly and *ad infinitum*. The morbid sporule, finding in the wound the necessary conditions for its life and growth, may engender new sporules, or so modify the serosity of the mucous or cutaneous wound, that the serosity, once absorbed, will carry with it into all parts of the body the purulent essence, and so give rise to the manifestation of purulent infection.

If this be true, therapeutics will, we may fairly hope, be as powerful as the disease; for, as the vegetable sporules will die if deprived of the medium necessary for their growth, so likewise may these morbific sporules be destroyed if attacked at the moment when they are deposited on the wound, or if the wound be so modified as to be rendered unfitted for their growth. Thus may not cauterization be destructive of these sporules? Is not diphtheritis often modified or removed by special agents, such as tannic acid, or even glycerine? Are not the most subtle poisons destroyed by early cauterizings of the inoculated wound —the virus of syphilis, of serpents, and of hydrophobia, for example? The therapeutic agent in such case, applied in time, destroys the virus of the poisons, or it converts the wound into a non-absorbing surface.

We can, it is true, never hope to purge the atmosphere of the many morbid agents floating in it; but public hygiene may diminish their intensity. And if we cannot, in dressing wounds, remove all sources of impurity, we can, at all events, render the wound unfitted for the reception or absorption of the morbid matters.

M. Trousseau quotes M. Maisonneuve to show that the actual cautery is the best means for the prevention of purulent absorption; and he suggests that the ligature of arteries may, in this respect, be considered a retrograde step. The ligature keeps up suppuration, and is, therefore, a direct cause of purulent infection. On this score, however, neither M. Trousseau nor M. Maisonneuve will find many adherents in opinion.

Erysipelas, M. Trousseau adds, in surgical wards is always most frequent in times when puerperal fever is raging epidemically. We cannot divide erysipelas into spontaneous and traumatic; for it is invariably traumatic. It always commences with a wound. Carefully examine your patients, and you will find that all those who present themselves with so-called spontaneous erysipelas had previously had some wound in the pharynx, the amygdalæ, the mouth, some scratch about the lips, eczema about the ears, or some cutaneous disease of the scalp.

There is, in all cases of erysipelas, a wound; and with the wound, in fact, the erysipelas commences. When erysipelas appears, it is generally as an epidemic. Moreover, there appears to be a distinct relation between erysipelas and purulent infection. The gravity of these diseases generally increases or diminishes at the same time. They occur at the same time, in the same ward, in the same hospital or town. Moreover, erysipelas of a serious kind often ends in purulent absorption; and thus we find relations existing between phlebitis, purulent infection, and erysipelas. They may, in fact, be only different degrees of inflammation of venous tissue, having one common cause of origin, a wound, and associated with one particular epidemic; and they may be modified in their pathological evolutions by topical applications to the wound, or the germ deposited on the wound.

Thus, then, we find, in conclusion, that there is no such thing as purulent infection without a wound; that a wound is the necessary and obligatory condition of its existence; that every wound may be attended with suppurative phlebitis. Suppurative phlebitis, the most ordinary source of infection, causes the pus to be passed as such into the circulation. The pus may be introduced in a continuous or in an intermittent manner. Purulent infection may also result from abscesses of the coats of the aorta and of the heart; but this cause of infection is rare.

Capillary phlebitis may cause the infection through the production of pus; but in the epidemics of purulent infection, the serosity of wounds, modified in a special manner by atmospheric conditions, may be absorbed by the capillaries, without any erosions of the vessels.

Such are the views on the subject lately delivered by M. Trousseau. We need hardly tell our readers that, however rational they are, they are, as yet, only hypotheses and matters of speculation. But from rational hypotheses often spring great conclusions and discoveries; and, therefore, we recommend them to the consideration of the profession.—*British Medical Journal*, July 12 and 26, 1862.

—

15. *A Disease like Measles produced by an Unusual Cause.*—Dr. HENRY KENNEDY relates (*Dublin Quarterly Journal of Medical Science*, Feb. 1863) the following case, which, at the time of its occurrence, he says, he "was in total ignorance of its nature," and set it down as anomalous. So matters stood until he read the paper of Dr. Salisbury, published in the July number of this Journal for last year. This paper he regards as throwing light upon the origin of the disease in his case.

This case was briefly as follows:—

"A young gentleman of fifteen years of age, rather under-sized, but of a high order of intelligence, returned to school after the summer holidays, being then in perfect health. As he entered the school-room one of his playmates met him, holding a paper bag, with some kind of powder in it, in his hand, and before he

was aware, had dashed a handful of the powder in his face; and there can be no doubt that some of it got not only into his eyes, but down his throat—for he was laughing at the moment. The powder turned out to be flaxseed-meal, which, by some accident, the other boy had found in the room.

"The result was truly remarkable; the boy was at once seized with smarting and watering of the eyes, running from the nose, cough, and dyspnœa. With some difficulty he made his way home—a distance of an English mile. By the time he reached it his face had become much swollen, the eyelids and eyes very red, and the dyspnœa urgent. The excitement, too, of the system generally was very great; and all this within two hours of the accident. When seen the following day he had, except the rash, all the look of a boy suffering from a sharp attack of measles. His face was still swollen, his eyes were injected, and had a strange dark-red line round them, giving a very peculiar expression to the countenance; and he had a constant loud cough, with dyspnœa. His pulse was 120. Two years previously I had attended him in a well-marked attack of measles, with cough.

"On hearing the history of the case, I confess I thought that quiet and a little time would suffice to get him well; and so he was only directed to inhale the steam of boiling water; and, as his distress was referred mainly to the larynx, a small mustard poultice was directed to be applied over that organ night and morning. In this expectation, however, I was much disappointed; and finally, after waiting a few days, when a considerable amount of general bronchitis had supervened, I was compelled to treat the case as if it were ordinary measles, by salines, including tartar emetic, and blisters; and by the end of three weeks, and not till then, could he be pronounced well. The last symptom which remained was dyspnœa; for this he got small doses of the oxide of zinc with markedly good effect. The boy is now perfectly well."

Dr. Kennedy considers that Dr. Salisbury has opened up a question of the greatest interest and extent, and he regards the experiments of Dr. S. as conclusive, that certain bodies which are being constantly generated in vegetable matter, are capable of causing certain diseases when inoculated in the human frame, or brought even only in contact with mucous membranes.

Dr. K. thinks that the following deductions may be drawn from the facts which have been adduced:—

"1. That certain acute diseases affecting the throat and air passages may be caused either by inoculation of certain vegetable fungi or by direct contact of the same with the mucous membranes.

"2. That, as far as is yet known, the diseases so produced seem to have the closest resemblance to measles.

"3. That the vegetable fungi which have been long admitted to exist in certain chronic diseases, as those of the skin, show an impaired state of the constitution; and hence the importance of combining a constitutional with a local treatment in their management.

"4. That when vegetable fungi cause disease by coming in contact with the mucous membranes of the head and chest, we have now fixed data for the administration of emetics; which, by their direct effects, may thus cut short disease in its early stage."

—

16. *Diseases produced by bad Potable Water.*—M. Bouchardat has communicated to the French Academy some elaborate investigations on this subject. The following are the more salient facts and conclusions at which this persevering observer has arrived:—

Endemic cretinism is principally due to two causes acting simultaneously, viz., the connection of cretinism with endemic bronchocele and consanguinity of marriages. In all localities where endemic cretinism has been observed, endemic bronchocele is, likewise, met with; thus, in the Himalaya Mountains, in the Andes, the Pyrenees, and the Alps—in these parts people affected with goitre have cretinous children, and the progeny of these latter are cretins. The intermediate degree of "cretinous" may be wanting, but only in exceptional cases. In order that endemic bronchocele may be developed, a few years', nay, even a few months' use of bad drinking-water may suffice, but that cretins may

be produced, it is necessary that insalubrious conditions should extend over several generations. Amongst these influences marriages of consanguinity between people who have been subject to the action of bad drinking-water are the most powerful. This hypothesis explains the considerable influence exercised by the configuration of the soil. We observe cretins in closed valleys, which have little communication with the world without: the inhabitants of such localities intermarry; and even if all the marriages should not be decidedly consanguineous, they, nevertheless, take place most frequently amongst people who have been subject to the same influences. For such degenerate races consanguinity is full of danger. M. Bouchardat was formerly of opinion that consanguinity was not noxious to persons otherwise well developed; and believed that, although certain inconveniences might be connected with it, these were compensated by the increase of beauty and purity of race. This opinion was founded on certain facts in zoology, and on the circumstance that, in ancient Greece, the most perfect types of humanity had, under the influence of consanguineous alliances, become rather improved than deteriorated. His convictions, however, have been shaken by M. Boudin's researches on the influences of such marriages in producing deaf-and-dumbness; and he will, probably, give up this idea altogether if he should become acquainted with M. Liebreich's investigations on "retinitis pigmentosa," as caused by the same influence, and which seem to have hitherto escaped M. Bouchardat's attention.

In order to prevent cretinism, public and private hygienic measures should be taken. As regards the individuals affected, they should be removed from the localities where endemic goître and cretinism are found to exist, and transferred to a moral, intelligent, and humane household, where they should be under continued *surveillance*. They ought not to be left to a degrading inaction, but those faculties which are given them should be brought into play. With respect to public hygiene, we must keep in mind the fact, that cretinism has been diminished, or even altogether disappeared, as soon as a broad high road has intersected the places in question, and they have been animated by commerce. They should, therefore, be cut through, not by railways, but by roads, leading to a healthy population into the localities, and thereby diminishing the chance of marriages of consanguinity. The church should only give licences for such marriages with the very greatest caution. Gin-shops should be placed under strict *surveillance;* and all should be rigorously punished who would sell alcoholic liquors to children, or to beings devoid of reason.

In France, and on the Continent generally, persons affected with goître, and having a disposition to cretinism, are exempt from military service; but M. Bouchardat is inclined to think that, by recruiting amongst such persons for the army, we should render them the most essential services. The change of place, the attention that would be given them by the army surgeons, etc., would soon free them from their infirmity; while military discipline would raise the level of their intelligence, and, in subjecting them to the "reign of rule," would make useful men of them. Another consideration here would be, the amelioration of race. If bronchocele is the first step leading to cretinism, it is obvious that, if the *élite* of the population is taken away by conscription, persons with bronchocele, who are exempt, will, as it were, monopolize the country, and condense the focus of the evil. Thus conscription, which for these localities might be a condition of progress, if it removed those affected in order to bring them back cured, becomes, on the contrary, one of the most active causes of degeneration. Persons of the kind mentioned might do good duty in military infirmaries and other branches of the army and navy. If transferred to this latter, the mere circumstance of living in a port or on the sea would effect a speedy and definite cure. The last word of advice, however, to the authorities is—give these localities wholesome water. Everywhere you may collect rain-water in sufficient quantity for the wants of man. Distribute, moreover, to the populations of such districts salines, with a small proportion of iodine, so that each person may take a few milligrammes of iodine every day, proper medical attention being at the same time necessary. Drinking-water, the continued use of which causes the formation of endemic goître and cretinism, contains organic substances in solution which come from the decomposition of certain vegetable

parts in dolomitic soil. Such water generally comes from ponds, marshes, fens, and swamps, and should never be taken unless previously filtered or boiled.

The "bouton" of Aleppo, and the "bouton" of Biskra, two endemic diseases of the skin which are still enveloped in much obscurity, are in all probability produced by the use of unwholesome drinking-water. All those who drink of the water of Coïck for a certain time become affected with the "bouton" of Aleppo, while those who do not partake of it are spared. The country people who come to the town of Aleppo and drink of the bad water soon begin to suffer; while those peasants who stop at home remain free. The water of Coïck is slightly alkaline, and contains the salines usually found in drinking-water, as well as organic matter, which latter is no doubt the cause of the evil. The "bouton" of Biskra, which very much resembles that of Aleppo, is to be ascribed to the use of the water of a torrent coming from a plain where the remains of more than a hundred thousand palm-trees are accumulated. It is highly probable that the organic substances coming from the decomposition of these remains, under the influence of salines in solution, impart this remarkable property to the water.

The following are the chief hygienic characters of the different species of drinking-water:—

1. *Spring-water* has the advantage of being generally limpid, so that there is no occasion for filtration, and of being fresh and agreeable to drink; springs come, moreover, frequently from a higher elevation than the towns where they are used, so that we do not want mechanical contrivances for raising the water. Spring-water is mostly richer in salines than river-water. If it is pleasant to drink, and if the fixed constituents consist of bicarbonate of lime without organic matters, and with oxygen, the water is extremely salubrious; but if it contains organic substances, if it comes from marshy soil, and is devoid of oxygen, it must be looked upon with distrust, in spite of the good appearance it may present. Water of this kind should only be used, if the experience of several generations has fully proved its innocuity. This is of much more importance than any chemical analysis, however well made.

2. *Water of rivers and rivulets* is generally wholesome, but its composition may slightly vary according to high or low-water, and this is not the smallest disadvantage it offers. It requires to be filtered, and in summer to be cooled; and the poor man has no filter for purifying, and no cellar for cooling the water.

3. *Water of canals* usually contains more fixed constituents than river-water, and also organic matter.

4. *Water of wells* in old towns is almost always saturated with sulphate of lime; it contains, moreover, the last products of decomposition of organic substances, amongst which we find nitrates and compounds of ammonia, which arise from putrid fermentation of bodies interred in cemeteries, and other impurities.

5. *Water of cisterns*, accumulated by rain, is generally pure, unless collected from roofs soiled by dust or soot. This water is almost too pure, and the absence of lime is prejudicial in certain conditions, as, for instance, for wet-nurses, young children, etc. This want should, therefore, be filled up. Rain-water combines with lead, and we should, on no account, collect it in cisterns of lead, or raise it by pumps in the construction of which lead has been employed.

6. *Water of marshes, ponds, swamps, fens, etc.*, is generally bad, because it contains a considerable proportion of organic substances in suspension and solution. If one is obliged to drink water of this kind, it is preferable to choose such only as has undergone the influence of the sun, and which contains red or green monads. If possible, it should be filtered through carbon, and only be employed after having been boiled. As boiled water, by itself, is unpleasant to drink, tea or coffee should be added, or, if these substances cannot be procured, roots of the strawberry plant, leaves of holly, oak, soap-wort, sage, mint, thyme, etc.—*Med. Times and Gaz.*, Feb. 14, 1863.

—

17. *Epidemic from Eating the Meat of a Diseased Cow.*—Dr. Husemann, of Detmold, gave an account to the Congress of German Naturalists and Physicians, of a new epidemic disease, which had been observed by him in August,

1862, and was caused by eating the flesh of a diseased cow. About 150 persons were affected. The epidemic was novel in etiology as well as with regard to the symptoms. There were three forms of it: one was very mild, the patients suffering from diarrhœa without fever; another was more severe; there being rigors, febrile symptoms, vomiting, diarrhœa, cerebral symptoms, and violent pains in the abdomen, with great sensitiveness to pressure; the symptoms continued for about a week. The third form was the most severe; there was general collapse, coldness of the extremities, scarcely perceptible pulse, etc. Death ensued in three cases, and convalescence was much protracted in the others. The post-mortem appearances were gastro-enteritis, and hyperæmia and extravasation in the cerebral meninges, the blood being dark and very fluid. There was no retention of urine, and no difficulty of deglutition, whereby the epidemic was distinguished from cholera, and from poisoning with sausages. The cow had had a fracture of the ribs and pleurisy, and it was, therefore, probable that the meat had been poisoned in consequence of pyæmia. The meat was poisonous whether roasted or boiled.—*Med. Times and Gaz.*, Dec. 13, 1862.

—

18. *Cerebral Hemorrhage.*—Mr. JONES read (January 16, 1863) before the Western Medical and Surgical Society an account of his researches relative to some points in connection with cerebral hemorrhage. The author's conclusions were based upon 40 fatal cases which had occurred at St. George's Hospital. These were taken indiscriminately; but after a careful scrutiny, selecting only those cases in which a perfect post-mortem examination of all the organs of the body took place, and in which a visible hemorrhage could be demonstated from the cerebral arteries, 36 cases were found perfectly reliable for his remarks. Of the predisposing causes, the influence of age was first discussed, and, contrary to what had been often advanced, he showed that the greater number of cases occurred between the ages of 40 and 50; for in 38 cases he had found 3 had occurred between 30 and 40 years, 13 between 40 and 50, 10 between 50 and 60, 9 between 60 and 70, and 3 between 70 and 80. But a further examination showed that, by comparing the numbers of cases with the respective numbers of population at similar ages, the period of life at which the disease was most prone to occur relatively was between 60 and 70; for between 30 and 40 years, 3 cases occurred in a population of 2500; between 40 and 50, 13 cases in a population of 1800; between 50 and 60, 10 cases in 1300; between 60 and 70, 9 cases in 1000; and between 70 and 80, 3 cases in a population of 500. With regard to sex, males were shown to be more liable to the disease than females; for of 40 cases 11 only were females. Mr. Jones next described the efficient causes of cerebral hemorrhage, and the intimate connection between the latter and disease of the kidneys, heart, and arteries. This being one of the principal objects of the paper, he entered minutely into details of the 36 fatal cases in which disease of the kidneys, the heart, or arteries was found conjointly or singly with cerebral hemorrhage. The analysis of these 36 cases was then examined, the result being that disease of the cerebral vessels, other vessels, of the heart, of the kidneys, was found in conjunction 10 times; disease of the cerebral vessels, of the heart, of the kidneys, 22 times; disease of the heart and kidneys, 29 times; of the cerebral vessels and kidneys, 22 times; of the cerebral vessels and heart, 24 times; of the cerebral vessels and heart (hypertrophy), 10 times; of vessels not cerebral and kidneys, 13 times; of vessels not cerebral and heart, 13 times. The further result of the analysis showed that in more than one-half the cases the kidneys, heart, and cerebral vessels were simultaneously affected; and in almost all those cases in which there was absence of disease in one or other of these organs there was the history of an accident to which this attack was attributed. The various morbid appearances found in the kidneys, heart, and arteries, under the foregoing circumstances, were fully and minutely explained, the author being strongly of opinion that the diseased condition of the kidneys first led to that of the arteries, and subsequently to the heart. In support of this opinion, Mr. Jones offered an hypothesis to the effect that the kidneys, from their disorganized state, being unable to depurate the blood on the one hand, but allowing the albumen to unduly pass away on the other, this

fluid was rendered unfit to carry on the nutrition of the tissues, and that the arteries suffered early from this defective nutrition. The conclusions the author drew from his elaborate examination of the subject was, first, that cerebral hemorrhage, when associated with renal disease, is almost always found to be dependent upon rupture of one or more of the cerebral arteries, in consequence of certain morbid changes having taken place in their walls; secondly, that these changes in the walls of the vessels are induced by the altered state of the blood, the effect of advanced disease of the kidneys; and, lastly, that the enlargement of the heart is the immediate effect of the renal disease, conjointly, perhaps, with the alterations in the coats of the vessels. The paper concluded with some remarks upon the treatment of these cases, in which a tonic and stimulating plan, rather than a lowering one, was advocated, and two cases were given which seemed to justify it.—*Med. Times and Gaz.*, Feb. 14, 1863.

—

19. *Influence of Hypertrophy of the Heart and Diseases of the Cerebral Arteries in the Production of Apoplexy.*—Dr. A. EULENBURG has investigated this subject statistically in a prize thesis presented to the Medical Faculty at Berlin. In 42 cases of sanguineous cerebral apoplexy, abnormal conditions of the arteries at the base of the brain—hardening, calcareous deposits, and fatty degeneration—were found in 29: in 13 cases only were the large cerebral arteries free from disease. In 9 of the 42 cases there was hypertrophy of the left ventricle. Of the 29 cases in which disease of the cerebral arteries was present, there was also more or less extensive endocarditis in 17, alterations of the valves of the heart in 19, and hypertrophy of the left ventricle in 6 only. Dr. EULENBURG hence draws the conclusion that disease of the cerebral arteries is a much more frequent cause of apoplexy than cardiac hypertrophy.—*British Medical Journal*, Dec. 6, 1862, from *Virchow's Archiv*, and *Wiener Medicin. Wochenschr.*, Sept. 6, 1862.

—

20. *Embolism.*—An interesting case of embolia of the infundibulum of the right ventricle and pulmonary artery communicated to the Société Anatomique, of Paris, by M. GOURAUD, has been made the subject of a report by M. LANCEREAUX. The following is M. Gouraud's *résumé:* "A healthy woman, aged 46 years, entered La Charité, for a fracture of the right leg, accompanied by considerable extravasation of blood. Scutter's apparatus was applied, and all went on well, the size of the limb lessening. After three weeks the apparatus was replaced by a starch bandage. On the following morning the patient was quite well, but, some hours later, violent palpitations of the heart occurred, the patient cried out, became livid, and was dead in a few minutes. On post-mortem examination, the right tibia presented two solutions of continuity, the fibula being fractured in only one place; there was an extravasation of blood infiltrating the whole thickness of the soft parts in this region. The veins of the right leg presented small coagula, which became more distinct and large in the femoral vein, the external and common iliac, and even in the lower part of the vena cava. The fibrinous coagulum was firm, elastic, of a deep red or rose colour, and was adherent at several points to the internal surface of the vessel. On the left side the limb and veins were healthy. From the lower part of the vena cava to the heart the blood was liquid. There existed in the infundibulum of the right ventricle and in the pulmonary artery a clot drawn out into the form of a leech, thirty-six centimetres in length, of a diameter much less than the vessel where it was found, of a rose or deep red colour, and not homogeneous. The lungs were engorged, but crepitant." M. Gouraud explains the obliteration of the passage by the arrest of the long clot, on arriving at a branch of the pulmonary artery, such as would not allow it to proceed further, and then by the ventricular contractions causing the other extremity to be folded back in the infundibulum, so as to lie opposite the sigmoid valves. It is necessary that we should abridge considerably M. Lancereaux's observations. The first question to which he applies himself is the cause of the coagulation which took place in the veins. He explains it thus: The blood coagulated at the seat of the fracture necessarily compressed the mouths of the ruptured vessels; but, at the same time, coagula would form at the extremities of these vessels, and mount up, as is the rule for

them to do, as high as the nearest valves. From the withdrawal of the *vis a tergo*, there would be stasis of the blood proceeding from the collateral veins, a new coagulum, commencing this time at the valves, and these latter coagula would lengthen gradually, and become, in their turn, the cause of new coagula, until the principal venous trunk becomes completely obstructed. In this view the cause is a local one, namely, the diminution of the current of blood, and the influence exercised by the fibrinous clot upon the blood which surrounds it. Admitting the sufficiency of this cause to produce venous coagulation, other causes may be added, such as diminution or loss of contractile power in the veins, tumours compressing them, and whatever retards the venous circulation. General causes would also operate, on the one hand, by lowering the force of the heart and the contractility of the vessels, and, on the other, by causing modifications in the blood itself such as are even now little understood. It is important to point out that, under the influence even of general causes, it is always where the circulation tends to be slow that coagulation commences.

The clot, which begins to be formed at the situation of a valve, presents a form and characters which must first be treated of. At one extremity it presents the mould of one or two of the valves; its other end is rounded or conical, and upon its length may be perceived the smooth and clean impressions of valves. One of its surfaces, that in contact with the wall, is strictly striated, yellowish or marbled; the other surface, free and bathed in the blood, is brownish and granular. The length varies from some millimetres to several centimetres; its bulk may become considerable, since it generally forms in the largest vessels, and is thus the most frequent cause of sudden deaths. Besides, by reason of its characters, it constitutes the most positive evidence of embolia of the pulmonary artery when it is met with in this entirely valveless vessel. Observation teaches us that, where there is but one clot, and the death has been sudden, it is always the trunk of the pulmonary artery or the infundibulum which is found obstructed. The blood in the heart is ordinarily black and fluid, as in death by asphyxia. I do not, for my own part, think that a single embolus, arrested in one of the divisions of the artery, can bring about this fatal accident. For the most part the embolic clots are multiple, and always, I say again, if death has been rapid, they are found either in the trunk of the pulmonary artery or in its principal branches. As respects the smallest clots, they are rarely found in divisions of the fifth order, but mostly in those of the third or fourth. In some special cases known as capillary emboli, very small clots have been found in the smallest branches. The form of the migratory clots is generally cylindrical, their extremities at one time regular, smooth, and conical; at another, rough and torn; at another, only one end is torn, while the other is polished and conical. It is in cases where both extremities are smooth and untorn that valvular impressions are found upon the body of the clot, and one or two moulds of valves at one extremity. The clots which are torn at their extremities are generally devoid of impression and moulds, but they are now and then channelled. When one extremity only is torn, the other is generally conical. The same difference which we have established in the characters of venous clots is, consequently, found in the clots of the pulmonary artery; and there exists between the venous coagula and those of the pulmonary artery such a resemblance, that we are compelled to admit that the clots have been transported from the veins into this artery.

Besides these characters, embolic clots differ from coagula formed just prior to or immediately after death in their elasticity, brownish or marbled colour, and the condition of the fibrin which is always in progress of retrogression. The clots formed at death are soft, œdematous, flattened, branched, and only close incompletely the containing vessel. The clots which, during life, form primarily in the branches of the pulmonary artery (autochthones), differ from emboli in their form and seat, and in the absence of the characters which have been described. In certain circumstances, however, they are readily confounded with embolic clots, namely, where fibrinous coagula have become added to the latter, but it is always easy, by means of a section and examination with the microscope, to recognize the central embolus. If the bulk of embolic clots is very variable, their length especially presents great variety: thus, whilst some

may only measure a few millimetres, others are several centimetres in length; such as I have seen produce sudden death, have been five centimetres long; that which M. Gouraud has described in his observation presented the extraordinary length of thirty-six centimetres. I am disposed to believe that some error has slipped into this measurement, especially seeing that the femoral and part of the iliac veins were filled with a fibrinous coagulum. Under these circumstances it is necessary to suppose that the embolic clot occupied primarily the greater extent of the vena cava, a hypothesis of little probability, since no symptom of such an obstruction was apparent during life. I am, consequently, driven to believe that some secondary coagulations have been comprised in the measurement. But be this as it may, it is certain that very long clots may be carried by the torrent of the circulation, and an important and peculiar character of them is, that they are curved and wound round, at one time in the trunk of the pulmonary artery, and in the infundibulum, as in M. Gouraud's case—at another, in one of the principal divisions of the pulmonary artery. But after a certain lapse of time these distinctive characters become wanting, and it is then very difficult to tell whether a coagulum, met with in the pulmonary artery, has been formed there, or has arrived there by migration. The only circumstance which we may thus be able to call up in favour of embolus, is the existence of a venous thrombus. The phenomenon which renders the embolus unrecognizable is important and really remarkable. The continued contact of the clot with the arterial wall determines a slight irritation, in virtue of which a blastema, exuded between the wall of the vessel, and the clot, soon becomes organized; by degrees, this substance extends on the circumference of the plug, and soon forms a sort of cupule, in which the latter is contained. At last it envelops it completely, and encysts it, so that, after a time, often not very long, the fibrinous coagulum of the pulmonary artery is found to be everywhere surrounded by a perfectly organized membrane. Within this membrane, microscopic examination discovers an amorphous substance, more or less granular, embryo-plastic nuclei, elongated cells, and, above all, fibres of connective tissue. In the midst of these elements we sometimes find capillaries, free granules, the *débris* of red globules, and amorphous and crystalline hæmatin. After describing further changes in the condition of these encysted clots, M. Lancereaux proceeds to the subject of the condition of the lungs in cases of pulmonary embolia. It is evident (he continues) that an embolus which closes up the trunk of the pulmonary artery, and gives rise to sudden death, cannot cause any important disorder in the pulmonary parenchyma. Supposing such alteration possible, time would be wanting. But it is different when a coagulum comes to be situated in an important division of the artery, closing its canal completely. In this respect, M. Lancereaux expresses his agreement with Virchow, who states that, however complete the obstruction, it produces no alteration in the parenchyma, and, above all, no gangrene of the lungs. At the most, Lancereaux has observed slight diminution of volume, anæmia, or some œdema; and he explains this, physiologically, by the fact, that the pulmonary artery is an organ engaged in hæmatosis, and that the nutrition of the lung is effected, not by this, but by the bronchial arteries. Still (he proceeds to say) pulmonary coagula are sometimes accompanied by a lesion of the parenchyma of the lungs, whether they be the cause of it or not. Pulmonary apoplexy is frequently conjoined with obstruction of the branches of the artery; but it is to be remembered, that this generally occurs in the course of affections of the heart, especially in fatty degeneration; and it is also to be observed, that, under these circumstances, the clot is always situated behind the apoplectic spot, has none of the characters of an embolic clot, and is evidently autochthonic—not the cause, but an effect, of the apoplexy. The same thing may happen in certain cases of tubercular disease, of pneumonia, or even of gangrene. It is, however, important to notice, that there are certain special conditions of the embolic clot which are capable of giving rise to two of the alterations just alluded to—namely, pneumonia and gangrene. These conditions pertain to a special state of alteration of the tissues, in the midst of which the thrombus has been formed: if the coagulation has taken place in the midst of a purulent or gangrenous focus, the coagulum, formed in part of fibrin, and in part of other elements, possesses qualities in virtue of which it may alter the

tissues with which it subsequently comes in contact; thus it is that metastatic abscesses often appear in the lungs of individuals, with suppurative thrombus of the cerebral sinuses, and in women suffering from metritis or suppurative phlebitis. Thus, too, gangrenous spots in the brain are found in persons who have primarily a gangrene of the lung; and gangrene of the lungs is met with frequently in paralytic individuals, in whom a sphacelus has formed over the region of the sacrum. Particles of fibrin or fragments of tissue, impregnated with pus or septic matters, become the points of origin of secondary foci, purulent or gangrenous, as the case may be.

Certain practical conclusions flowing from this fact related by M. Gouraud deserve attention. We find here a condition which has already been mentioned in other cases, one of which is related by Klinger. In three different cases sudden death has followed shortly upon compression exercised by a bandage upon the limb, which is the subject of the thrombus. It was, as we know, formerly customary to apply a compressing bandage upon a limb affected with œdema, or even with phlebitis, as soon as the acute stage of the inflammation had ceased. The practice is far from being free from danger, and it must necessarily be proscribed. But, besides, when, consecutively to a traumatic condition, fracture, amputation, etc., we have reason to suspect the existence of a venous thrombus, it will surely be prudent in the surgeon to abstain as much as possible from strong compression, if he would not expose his patient to more or less serious accidents. It is especially some time after the commencement of the coagulation, when the fibrin begins to disintegrate, that we must avoid this practice. And, for the same reason, every kind of handling of the injured limb should be avoided, and the most complete state of rest maintained. Indeed, in a certain number of cases, a slightly exaggerated effort, as I have seen on two different occasions, may suffice to bring about the separation of the clot, and sudden death. Occasional causes of this kind are marked, in the greater number of cases of sudden death, by embolia, and it is thus pointed out how necessary it is to be cautious when we have to do with patients suffering from venous thrombus.—*Med. Times and Gaz.*, Feb. 14, 1863.

---

21. *Conditions affecting the Constitution of Phthisical Persons when in Health.*—Dr. EDWARD SMITH, Assistant Physician to the Hospital for Consumption and Diseases of the Chest, has published (*Dublin Quarterly Journal of Medical Science*, February, 1863) a very interesting statistical inquiry into the prevalence of numerous conditions affecting the constitution in 10,000 phthisical persons when in health; intended to show the prevalence of a large number of conditions which are believed to modify the constitution, or which are evidences of modified constitutions in consumptive families. The investigation extended to a very large number of questions, and the results are given in separate tables.

The author gives the following summary of the leading truths which his extended investigation suggests:—

"The first question which arises is that of hereditary transmission, either in the sense of absolute transfer of the elements of the particular disease from the parent to the child, or the communication of a state of the system in which disease in general, and this disease in particular, may probably originate. There is a wide difference in these two ideas, and yet it cannot be doubted that they both exist in the minds of various professional men at this day. The former is the older one, and that which the increasing knowledge of our day has rendered less tenable than was formerly believed, since the idea of the transmission of the germs of disease *in utero* is now more strictly limited to such specific diseases as syphilis. Yet it must be admitted, that whilst the growing feeling of the day is in favour of a theory which only implies a defective constitution, there is an under current of belief that this assumes a specific direction in the production of this particular class of disease. Hence, whilst there is a clear distinction in the two theories in statement, there is far more oneness in belief. We will look at them in both aspects.

"Feebleness of the general health of the parents existed before the birth of the patient in one-fifth, and throughout life in one-third of all the cases. It is

quite certain that the former statement would be under the truth, since the child would only know of such marked deficiency of health as would, in after years, have been matter of frequent conversation. It is also necessary to consider the two periods together; for although it may be objected that the condition of the health of the parent, after the birth of the child, in no way concerned the health of that child, there is strong presumptive evidence that general feeble health throughout life indicated a condition of the constitution below that of health, and hence would have existed, although it might not have demonstrated itself before the birth of the child. We shall, therefore, more nearly approach the truth if we take the larger percentage to represent the true state of the system, and affirm that one-third of the parents had feeble general health.

"The mortality of the parents was such, that one-half of one, and more than one-fourth of both, were dead at the period of the inquiry. Hence, in three-fourths of the cases, one or both parents had died. In the same manner it is shown that in only one-fourth of the cases were both parents living. The value of these facts can only be estimated by considering the age of the child at the period of inquiry, and the age of the parent at the period of death; for it is evident that, as the child was younger or older, so would the parents, in the natural order of things, be living or dead. The average age of the patients, at the period of the inquiry, was 28.8 years. The age of the parents at their death, as ascertained by direct inquiry, was such that one-half of them died between 35 and 55 years of age—that is to say, in middle life; but still a larger proportion died after than before the period, so that some lived to upwards of 90 years, and more than one-third of the whole lived to above the period when the majority died. The proportion of earlier deaths was about one-third of the latter number, and was therefore inconsiderable.

"The influence of the acquired causes of disease in the parents has not been inquired into beyond the comprehensive question of unsteadiness of life; and the frequent occurrence of this cause has considerable importance. Of the diseases which had occurred, other than phthisis, we may remark that only rheumatism and asthma were sufficiently frequent to attract attention; and it cannot be presumed that they had any very direct bearing upon the general health of the children. Such diseases as gout, cancer, and various kinds of fevers, were unfrequent; and, with the exception of liver disease, the others were not worthy of attention. Hence, we do not think that these diseases of the parents had either an indicative or causative value in reference to production of phthisis in the child.

"It is of interest to remark how prolific were the parents of phthisical patients, for an average of 7½ children to each family is much greater than that of the general community; and also that, in so large a proportion, the patient was the first or second child.

"The importance of the first fact, therefore, extends chiefly to the early period of life, and does not show that it had produced a feeble state of the vital powers, such as might have been inferred if the patients were chiefly the last children born. Neither are we entitled to affirm that the powers of the parents were immature when the patients were born; for the age of the parents, at the birth of these children, shows that they were not largely the product of very early marriages, but they were born at a period of life when, in this country, the body is presumed to have approached maturity. It is true that we have shown that a large proportion of the parents had feeble general health, and therefore it might occur that their period of maturity had been deferred beyond the ordinary perid; but if debility of system of the parent be presumed to be a predisposing cause of phthisis in the child, and that debility had existed throughout life, it would be more probable that its effect would increase as life advanced, and be more evident in the children of later years.

"Hence, whilst these facts have great interest, I do not think that they help us to any affirmative views of the hereditary nature of phthisis.

"The mortality of the children was considerable; since, when the average age of the parents was 28 years, 40 per cent. of the children had died, and that fact would imply the existence of a feeble state of the system.

"We may now turn to the other aspect of the question, and show how far a

direct transmission of disease might have occurred in the cases in question. It is evident that the solution of this question must rest alone upon the occurrence of phthisis in the parents, since from them alone could the disease have been transmitted. To introduce the occurrence of the disease in the next relatives, viz., the brothers and sisters, would be valueless and superfluous; for, if the proposition were thus—because the brothers and sisters of the patient, as well as the patient, had phthisis, there is a presumption that they had derived it in common from their parents, it would prove nothing beyond what could be derived from the parents alone, by ascertaining their mortality from phthisis, unless we are at liberty to infer that phthisis is a disease which may be communicated through the parent to the child, without the parent having suffered from it—an inference which, although supported by a few facts, has hitherto found no place in the idea of the hereditary transmission of the disease. So, in like manner, we may discard inquiries into the occurrence of phthisis in the uncles, aunts, and cousins, since we have direct testimony as to the parents themselves.

"In only one-fifth of the cases has either of the parents died of phthisis, although they had all lived until middle life; and hence we may support the statement of Professor Walshe, derived from fewer facts, that "phthisis, in the adult hospital population of this country, is, to a slight amount only, a disease demonstrably derived from the parents." The proportion of deaths from phthisis in these 1000 cases was, however, somewhat higher than that which is found in the community as a whole.

"As a general result of the inquiry under this head, we may affirm that phthisis is not necessarily nor usually a disease directly transmitted from the parent to the offspring, but that in a large proportion of phthisical patients the parents and brothers and sisters had experienced feeble health, and a somewhat lessened duration of life. There was not, however, a majority of the cases so connected.

"The next question of interest is the liability of females over males to many of the conditions which have been embraced by this inquiry. There is a singular unanimity in this respect with regard to the most important subjects. Thus, in reference to the parents, more mothers than fathers had children early, had feeble general health both before and after the birth of the patient, and had died early. Of the patients, more females than males had mothers who died early; had most parents, brothers, sisters, and other relatives who had died of phthisis; had parents with one child only; had experienced feeble health and defective appetite throughout life; had been believed to have delicacy of the lungs; were young when their first child was born; had children of feeble health: and had lost most children. Of the less important questions it may be added, that more females than males had suffered from anxiety; had had measles, scarlatina, and hooping cough; had not worn flannel upon the skin; had a very defective education; were of a susceptible temperament; had brown eyes, florid complexion, and fleshy habit; and had experienced coldness of the extremities. Such a preponderance of evils in one sex is most striking, and is not paralleled by any observation hitherto recorded. It also shows how great is the mother's influence upon the health of the children, and how much greater watchfulness should be exercised over the female part of the population.

"3d. Of the group of questions which have a direct bearing upon the health of the patients, it may be remarked:—

"1. That debility of the general system, both at birth and in later life, was not a marked feature, since two-thirds had enjoyed good health and appetite through life; but the remaining proportion of one-fourth had been feeble from birth. Of the periods during growth, that from æt. 14 to 21 had a preponderance of cases in feeble health, but only to a moderate degree. Known delicacy of the lungs was found in only one-twelfth of the cases; coldness of the extremities was experienced in one-half of the cases; and there was a well-marked tendency to free perspiration. Leucorrhœa was prevalent.

"2. The menses did not appear too early on the average, neither were they in excess either in time or quantity. Early marriages were not common, but the health of the children was bad and the mortality great in one-half the cases. Abortions were frequent, and the patients were prolific beyond that of the general community. Sterility was found in one-eighth of the married cases.

"3. Immorality of life in the males, for a limited period, was frequent. Syphilis and gonorrhœa had occurred and recurred frequently. Masturbation and seminal emissions had been common. The evils attending occupation were very considerable and important, since in two-thirds of the cases they were complained of. Of these, long and late hours, close and hot rooms, and exposure, were the most frequent. Anxiety was prevalent.

"4. Of the sporadic disease of infancy, by far the most frequent was measles; and neither scarlatina nor smallpox had occurred in one-half of the cases. The occurrence of each of the diseases in adult life was recorded, but it was very unfrequent. Evils resulting from these diseases were very insignificant.

"5. The occurrence of the evidence of scrofulous disease was very rare, except in the instance of enlarged glands; but it is possible that a different result might be obtained from inquiries made at the children's hospital and in institutions where scrofulous cases are congregated. At the Hospital for Consumption there is shown to be no general or necessary connection whatever between marked scrofulous diseases and phthisis.

"6. Of general diseases, those only which were frequent were inflammation of the lungs and rheumatism.

"7. The occurrence of consanguinity in the parents, and of dry-nursing was scarcely found. Asthma was found in one of the parents, and chiefly the mother, somewhat frequently.

"I have not, in this summary, entered into a minute analysis of the results obtained in this inquiry, but have selected only those which occupy a prominent place, or may be grouped together. The results obtained will bear, it is hoped, an importance beyond that to which I have applied them, and will be of greater value when similar inquiries shall have been made upon other large sections of the community. Whilst it has been shown that many conditions have less importance in connection with phthisis than has heretofore been believed, there is much evidence to show that the disease is frequently allied with a state of system defective in vital power and resistance, both of the patient, and his parents, and his children. The large proportion in which none of those states of health could be discovered, is, however, sound proof that phthisical patients are a mixed class, and that the disease arises under very diverse conditions. As to the bearing of this inquiry upon life assurance, I think it may be inferred that there is no such oneness of type of constitution that the most minute historical research could be a sufficient guide as to the future probability of the occurrence of consumption. There is clearly great diversity of causes leading to that issue, and hereditary influence can only be regarded as one of them. If the inquiry could have determined the proportion of persons derived from consumptive parents who would themselves become consumptive, it would have been more to this purpose; but such an inquiry is manifestly impossible. The only safeguard to life offices is, I believe, the estimation, by careful examination, of the degree of health of the proposed assurer; and, above all, the careful examination of the chest by those whose duties make them especially familiar with the subject, and particularly with the early conditions which precede the ordinary manifestations of lung disease."

---

22. *Cases of Phthisis—Arrest of the Disease, and remarkable gain in Weight.*—Case 1. M. N., aged 17, a servant, residing at Stepney, admitted to Montgomery Ward [Hospital for Consumption and Diseases of the Chest, Brompton], Aug. 25, 1862, under Dr. Pollock. Father died of phthisis. Ill two years, cough constant, but very moderate expectoration. Never had hæmoptysis; has lost much flesh; night sweats last three months. Complains of pain in right side and back, much debility, dyspnœa, vertigo, tinnitus aurium, and dim vision. Pulse rapid, small; tongue clean; appetite good; catamenia had appeared once only, six months ago.

Physical Signs.—Right: dulness from the clavicle to the third rib; blowing on inspiration and expiration, and large dry crackle. Some signs in supraspinous fossa. Base clear. Left: expiration much prolonged, and rough respiration throughout.

The girl stated that she had lived well, had had meat daily, and had not been

overworked. She was ordered a dessertspoonful of cod-liver oil twice daily, and five grains of citrate of iron in infusion of calumbo. The latter was changed a month later for a mixture of citrate of iron and quinine. Full diet consisting of four liberal meals per diem, one of them of meat *ad libitum*, and wine.

The following is her weight table:—

	st.	lbs.
Sept. 1	7	0½
" 15	7	7
" 29	7	10
Oct. 13	8	0½
" 27	8	5
Nov. 10	8	7
Dec. 1	8	13

The progressive increase has been:—

	lbs.
1st fortnight gained	6½
2d " "	3
3d " "	4½
4th " "	4½
5th " "	2½
Last three weeks	6
Total gain in 91 days	27

Cod-liver oil had been regularly taken for three months before admission.

On November 12, the following were the physical signs on the right side: Dulness, as before; dry, leathery, creaking sounds have replaced the cracking under the clavicle; below this is heard a whiffing, dry inspiration; no moist sounds anywhere; the catamenia are still absent. This patient expresses herself as much relieved, and seems not to have much the matter with her. The night sweats ceased long ago.

Remarks by Dr. Pollock.—This seems to be a case of chronic tubercle in one lung, derived hereditarily, with little activity of the constitutional mischief, and arrested before softening had occurred to any extent, and before the isolated deposits had coalesced to form a cavity. On the eve, as it were, of such occurrence, the disease stopped short, the tubercle tending to dry, local irritation ceasing, and the nutritious processes of the body proceeding rapidly to replace the waste undergone by the tissues. It is important to observe that this patient was not taken from poverty and placed in the midst of plenty, for her living had been previously good; but it is equally important to remember that she was taken from a life of daily labour and anxiety, and placed where there was no necessity of any exertion of mind or body, and where every want was cared for. The remedial influences were, therefore, many in addition to those purely medicinal. She had taken cod-liver oil for three months before admission.

The following case presents many points of similarity:—

Case 2. M. A. G., aged 15, tailoress, admitted under Dr. Pollock, August 26, 1862, Harewood ward. Has always lived at home; the family being in comfortable circumstances, had meat daily. Of middle height, chest pretty well shaped, hair light brown; of lymphatic temperament. Her father, mother, and several maternal uncles and aunts, died of phthisis. Ill three months, cough constant for that period, with slight expectoration. No hæmoptysis; catamenia established at 13, now absent for five months; no sweatings; complains of cough, debility, flushing; appetite indifferent; tongue clean; pulse quiet.

Physical Signs.—Left: dulness on percussion; humid crepitus over the whole front and axilla; also in supra-spinous fossa; rough respiration at base posteriorly. Right: percussion slightly dull; clicking sounds in supra-spinous fossa, and along spine; posterior base pretty clear. She has considerably lost flesh.

The following is her weight table:—

	st.	lbs.
Sept. 1	6	13
" 15	7	4
" 29	7	8
Oct. 13	7	13
" 27	8	1
Nov. 10	8	6
" 24	8	7½

The progressive increase has been:—

	lbs.
1st fortnight gained	5
2d " "	4
3d " "	5
4th " "	2
5th " "	5
6th " "	1½
Total gain in 85 days	22½

This girl is also now in a very comfortable condition, coughs little, sleeps well, and expectorates scarcely anything. The catamenia have not been re-established.

The physical signs in this case underwent an alteration coincident with the improvement in health. On November 12, a careful examination gave rough, dry inspiration, and prolonged expiration over left side, instead of the humid crepitus formerly noticed.

The points of resemblance in the two cases (Dr. Pollock said) were: In both the disease was hereditary; occurred at the period of growth; in neither had there been hæmoptysis; the absence of fever, and the similarity of temperament (the lymphatic); the moderate amount of expectoration; the unimpaired condition of the digestive functions; the suspension of uterine activity; the limited amount of disease in the lung; and the characters of, and changes in, the physical signs denoting a deposit in the lung undergoing alterations rather of an absorptive than of a softening nature. A theoretical view of the two cases implies that a slight injury having been sustained by the lung, not only did the deposit undergo changes indicating a tendency to dry up, and leave behind merely the inorganic elements of tubercle, but the still more important fact, that the impairment of nutrition, in which the morbid changes originated, had ceased, and that the tissues of the body were again being built up of healthy material. Such a condition may fairly be called an "arrest" of diseased action, and exhibits, hopefully to the practitioner, clear evidence of the reparative powers and tendencies of the system.—*Med. Times and Gaz.*, Jan. 24, 1863.

—

23. *Clubbed Fingers in Diseases of the Chest.*—M. Trousseau carefully points out every year to his pupils the peculiar deformation of the hand, called *hippocratic* or *clubbed finger*, which, since the most remote antiquity, has attracted the notice of pathologists. Ancient writers thus describe the appearance of the fingers in consumptive subjects: "*Tabidis ungues contrahuntur*, or "*tabidis ungues adunci.*" In 1832, M. Pigeaux, a Paris practitioner, again invited attention to this, in some measure, forgotten symptom, and endeavoured to establish with precision its semeiotic value. M. Trousseau describes it as follows: It is a shortening of the third or ungual phalanx, attended with inspissation and transversal enlargement of the digital extremity. The nail, at the same time, becomes incurvated and the point of the finger assumes the shape of a club, or more properly, of the head of a serpent. The deformation is sometimes a slow process, but occasionally takes place very rapidly, and not without pain. M. Trousseau remarks that, not having observed clubbed fingers in genuine scrofula, nor in uncomplicated abdominal tuberculosis, he inclines to consider the symptom as special to chronic affections of the chest. He has met with it in the second and third stages of pulmonary consumption, and in young subjects suffering from chronic pleurisy. The sign is not, therefore, exclusively pathognomonic of phthisis; but the clubbed finger is much more frequently observed during the progress of that affection, and the unciform nail becomes better marked in proportion as the disease is in a more advanced stage. In the main, M. Trousseau opines that the hippocratic finger affords valuable presumptive evidence of the existence of pulmonary consumption. He ascribes the alteration of shape to hypertrophy of the bone, or at least to preternatural development of the fibro-cellular tissue in the pulp of the finger, invading the thumb and index, first of the right and afterwards of the left hand; the other fingers becoming successively affected in the order of their development, the little finger thus preserving sometimes its natural form, while all the others are already distinctly clubbed. M. Caron recently brought the question before one of the medical societies of Paris; and although he agrees with MM. Pigeaux and Trousseau as to the semeiotic import of the symptom, he connects it also with the scrofulous diathesis. In a recent number of the *Revue Médicale*, a new explanation of the deformation of the fingers is given by M. de Saint-Maclout. He observes, that in cyanosis, as M. Gintrac has before correctly remarked, the digital extremities sometimes assume the hippocratic character. The disturbance of nutrition in the cyanosis is consequent on the admixture of venous with arterial blood; and it does not appear improbable that the same

morbid confusion of the two kinds of blood also induces the clubbed form of the tips of the fingers in phthisis. M. de Saint-Maclout adduces in support of his opinion M. Natalis Guillout's researches on the *disarterialization* of the blood which passes through the lungs in tuberculosis.—*British Med. Journal*, Dec. 13, 1862, from *Jour. de Méd. et de Chir. Prat.*

—

24. *Generalized Emphysema.*—Under this name Mr. HENRI ROGER, in a memoir read before the Academy of Medicine in Paris, has described a rare form of disease, occurring generally in children. In the course of an acute inflammation of the respiratory organs, there is suddenly developed, at the side of the neck, a soft tumour with characteristic crepitation; the tumour is at first circumscribed, but soon extends in all directions through the subcutaneous areolar tissue. In such cases, M. Roger says, the emphysema has commenced in the lung, has traversed the areolar tissue of the mediastinum, and finally has reached the subcutaneous tissue. This condition, hitherto scarcely recognized, has been noted by M. Roger in nineteen cases, of which ten were observed and published by him and M. Blache, and nine have been collected by him from various sources.

Generalized emphysema occurs exceptionally in old age, very rarely in adults, but with comparatively great frequency in young children: fifteen of the cases were in children under four years of age. In nearly one-half of the cases, it was preceded by hooping-cough.

In generalized emphysema, there is no spontaneous production of gas by morbid fermentation, as happens in certain gangrenous affections. The air comes from the respiratory organs, by rupture of the air-tubes or laceration of the parenchyma of the lungs. On *post-mortem* examination, emphysema of all varieties—vesicular, interlocular, and interlobular—is found in the lungs; the mediastina are found riddled with vesicles and bubbles of air: and at the same time air is found in the subcutaneous areolar tissues. The emphysema of the mediastina arises either from the direct passage of the respiratory air through the laryngo-tracheal tube, or from the extension of the pulmonary emphysema. When a lung is highly emphysematous both in its interior and at its surface near the exit, emphysema of the mediastina may arise in two ways. 1. The subpleural mass of air, pushed on by fresh supplies which have escaped during forcible attempts at respiration, raises the pleura without rupturing it, and reaches the point of reflection of this membrane; having arrived here, it passes into the cellular tissue of the mediastinum. 2. A deeply seated distended vesicle ruptures, and the air passes along the cellular sheath of the bronchi and pulmonary vessels to the root of the lung, where it enters the mediastinum. This migration of the air from the lung to the mediastinum, and from the mediastinum to the external areolar tissue takes place during the paroxysms of suffocative dyspnœa which attend double pneumonia, or during the convulsive paroxysms of hooping-cough: the air, compressed by the violent respiratory efforts between the termination of the air-passages and the closed glottis, breaks through the least resisting parts—those parts of the pulmonary parenchyma which have undergone structural change in consequence of the primary disease.

Generalized emphysema, when it occurs, usually appears suddenly, at the acme of some acute affection of the air-passages, without any peculiar premonitory or concomitant symptoms. The first symptom is a tumour at the base of the neck, under the jaw, and even extending on the cheek: it is soft, and yields to the finger and ear a pathognomonic crepitation, which is sometimes increased by coughing or crying. In a few hours, the emphysema spreads in all directions, making the patients appear as if they were anasarcous; the general symptoms are, as a rule, aggravated at the same time.

This form of emphysema is generally fatal: death occurred in fifteen cases out of the nineteen. Death occurs in one or two days, sometimes even in a few hours or minutes; it is rarely delayed several days. But the unfavourable prognosis depends less on the emphysema than on the severity of the disease which has given rise to it.

In the treatment, the first indication is to calm the violent respiratory efforts which give rise to the emphysema; and this is to be fulfilled by the use of full

doses of digitalis, with opium. The absorption of the infiltrated air must depend on the natural powers of the system; but it may, perhaps, be hastened by stimulant frictions over the affected parts; and, in cases where the external emphysema is very severe and oppressive, an exit may be given to the air by punctures made with a capillary trocar.—*British Med. Journal*, June 7, 1863, from *Révue de Thér. Méd.-Chir.*, 1 Avril, 1862.

—

25. *Enormous Spleen.*—Mr. Nunn showed to the Pathological Society of London, Dec. 2, 1862, a section of a spleen, which weighed thirteen and a half pounds. Its transverse circumference was thirteen and a half inches; its longitudinal, thirty-two. It occupied one-half the cavity of the abdomen. The patient died of exhaustion and peritonitis. There was also a large quantity of fluid in the abdominal cavity.

Dr. Murchison asked if the blood had been examined.

Mr. Spencer Wells said that, more than twenty years ago, Dr. Robert Williams had made known the remarkable power exercised by bromide of potassium in reducing enlargements of the spleen, and had led to the admission of this remedy to the Pharmacopœia. He (Mr. Wells) had seen some extraordinary instances of this power, in cases of enlarged spleen following the fevers of the Mediterranean. In more than one case, the process of diminution was distinctly traced inch by inch, and a spleen which had reached the pubis and right ilium, had returned to a very small size under the use of eight grains of the bromide given three times a day. He would, therefore, like to know if this remedy had been tried by Mr. Nunn; and if so, and it had proved useless, whether (as the patient was apparently being killed by the splenic tumour, and by nothing else) the question of removal by surgical operation had been considered. The spleen could be removed very easily in dogs and other animals; they seemed to remain perfectly well without a spleen, and there certainly could not be more difficulty in removing a large spleen from the human body than a large ovarian tumour. For his own part, if he met with a case where a patient was evidently being killed by a large spleen, where all remedies had proved useless, and where the dying person was willing to run the risk on the chance of saving his life, he would certainly be disposed to remove the tumour.

Dr. Murchison thought there would be more difficulty in securing the splenic vessels than was met with in securing the vessels of an ovarian tumour.

Dr. Wilks said Mr. Wells' suggestion might prove a very valuable one. People, undoubtedly, did die of enlarged spleens, who had no other disease. The bromide of potassium was only useful in those forms of enlarged spleen which followed intermittent fevers. In the simple hypertrophy of the spleen, of which he believed Mr. Nunn's specimen to be an example, and in the lardaceous form of disease, the bromide was equally useless. In those cases it was very well worth while to consider whether a surgical operation might not save life.

Dr. Gibb had once removed an enlarged spleen from a dog. The animal lived six days, and then died of peritonitis.

Mr. Nunn said that the blood had not been examined.—*Med. Times and Gaz.*, Dec. 13, 1862.

—

26. *Disease of the Supra-renal Capsules without Bronzing of the Skin.*—It is supposed by some, that disease of the supra-renal capsules alone is not the cause of the symptoms of Addison's disease, but that it is disease spreading from them to the contiguous semilunar ganglia and solar plexus. But, in the following case, "the semilunar ganglia were more than usually involved. The right one was actually imbedded in the capsule." Here, then, is a well-marked case of disease of the capsules, affecting also the great ganglial centres in the abdomen, and yet the most marked symptom is wanting. This case will, doubtless, be cited by those who do not believe in Dr. Addison's views, as an instance contradictory to his theory. But although the discoloration of the skin is the most marked symptom, it has never been considered the most characteristic. Dr. Wilks says, in a paper in the last number of *Guy's Hospital Reports*, "the discoloration of the skin, although a striking feature of the complaint, was not

the main one insisted on by Addison; but since it is that which can be portrayed in a drawing, and, consequently, apt to strike the eye on turning over the pages of a monograph, it is not surprising that it was at once regarded as the most remarkable part of the complaint, and would, therefore, be especially dwelt upon in our ordinary mode of communicating to one another the facts relating to the disease, until, at last, the erroneous opinion would be reached that Addison's disease and discoloration of the skin were convertible terms. In the same article, Dr. Wilks relates a case (Case 8 of his series) in which there was disease of the capsules, and no change of colour of the skin. Yet a most characteristic symptom, "an utter prostration of strength," was not absent.

Dr. Harley considers that disease of the supra-renal capsules is not fatal; but, he says, disease may extend from them to the semilunar ganglia or solar plexus, or may excite such an amount of irritation in them as to induce secondary disease, which, and not the contemporaneous affection of the capsules, may cause death. He states that a rat, from which he had removed both capsules, lived in good health three years after the operation, and died at the end of that time of old age. He says, that in all cases in which the animals have died after removal, it is clearly due to the effect of the operation, and not to the loss of the capsules. The fact that rats, in which the capsules are loose and easily removed, generally recover, whilst guinea-pigs and rabbits, in which they are intricately involved in the abdominal plexus, frequently die, tends to favour the idea, that death is due to the operation alone.

In the article already referred to, Dr. Wilks writes, "the symptoms cannot be due simply to a destruction of the organs, since this must have happened, in many instances, long before death occurred, and is one reason, as before said, to suggest some implication of the organic system of nerves." In the case we are about to relate, as in case 8 of Dr. Wilks' series, before alluded to, the disease was in an early stage. Dr. Wilks says (*op. cit.*, p. 13): "A sufficient number of cases have now been observed to suggest whether the change in the skin does not depend on the chronicity of the disease; and that, if it should progress rapidly, no discoloration of the skin would be observed, the symptoms being merely those of asthenia."

William T., a publican, aged 31, was first seen at home by Dr. Gull on December 26. The case being a very obscure one, the patient was sent to the hospital, and admitted on December 27. He died on the 29th, before he had been seen a second time by Dr. Gull. As far as could be learned he had been ailing about four months, or, at least, there was no symptom to attract attention before that. He then began to get weak, pale, and thin. A medical man was called in, who gave him medicines with varying effect; and it was his opinion that he was consumptive. At this time he often had sickness, his appetite was bad, and he also at times complained of pain in his back. He had also various nervous symptoms, which were differently described; it being stated that he had lost sensation on one side of his face, and could not eat so well on that side; and that he had numbness in his legs, and that he could not hold his water perfectly. He still continued at his employment. About a month before his death he became much worse, with all the above-named symptoms, and he then went to Greenwich for change of air. He still became worse, however, the pain in his back becoming more severe. He returned home, but was obliged to ride from the railway station to his house, a short distance. On December 26, Dr. Gull was requested to see him, and advised his removal to the hospital. He was admitted the next day, December 27. He was so weak that it was necessary to carry him to the ward. He then brought up all the food he took, but rallied somewhat the next day. The next day Mr. Stocker saw him, and found him dying, after having vomited. Mr. Stocker said, that from this, his only visit to the patient, he did not know whether he was suffering from stomach, cerebral, or supra-renal disease.

The man's face was sallow, or of a yellowish cast, such as is seen in cachectic persons, but not sufficiently well-marked to attract attention. His wife said that his skin was sallow, but that no one had voluntarily remarked any change of hue.

The patient, on admission, stated that he had been ill six weeks, this being the time in which he had been incapacitated for work.

Autopsy, by Dr. Wilks.—Both supra-renal capsules were converted into large masses of an albuminous substance. They were larger than any which had yet been found at the hospital, and were composed of a material of a much more recent formation than had been before observed. They had contracted adhesions to the parts around, as to the liver, etc., from which the right one had to be torn. The right capsule was also adherent to the vena cava, and the coats of the vein were involved. On opening this vessel, there was seen a raised rough patch where the coats had actually been destroyed; and the disease was penetrating their interior. There were also contiguous lymphatic glands enlarged. The diseased organs, or the masses of material which took their place, were not weighed, in consequence of their non-removal from the kidneys, but they, probably would have weighed as much as two-thirds the size of the kidney to which they were attached. The substance composing the diseased organs was a softish material, of a white colour, of the consistence of tallow or lard. It cut with a smooth surface, but was easily friable, and could be rolled up into a softish mass. It was of the same character as had been met with in previous cases, but not, as in them, associated with any yellow or so-called tuberculous or cretaceous material. In fact, there was no deposit within them indicating that the disease was of any age, as it had not undergone those changes which time brings about. The deposit had, no doubt, been formed in a comparatively short period. The diseased masses were so contiguous, and the material forming them so encroached on surrounding parts, that the semi-lunar ganglia were more than usually involved. The right one was actually imbedded in the capsule, and many of its nerves passed into it. The left was in contact, and its nerves merely involved.—*Med. Times & Gaz.*, Jan. 24, 1863.

—

27. *White Fibro-serous Discharge from the Thigh.*—Dr. A. B. Buchanan communicated to the Royal Medical and Chirurgical Society (Jan. 27, 1863), the history of a remarkable case of discharge of white fibro-serous fluid from the posterior cutaneous surface of the thigh, at present under his care in Glasgow. The patient was a woman, in other respects in fair health, aged 46, and mother of six healthy children. The discharge was white, like milk, and flowed from excoriations produced by the rupture of small vesicles scattered over the back of the thigh, and particularly from an infiltrated patch, of the size of the palm of the hand, on which the vesicles and excoriations were most abundant. The milky fluid coagulated a few minutes after being passed. It contained a fatty molecular base, similar to that of chyle, and a few nucleated cells. The results of a chemical analysis closely corresponded with those yielded by "chylous urine." The patient dated the commencement of her malady from a shivering-fit twenty-one years ago, shortly after which she noticed a "lump" in the situation of the affected surface. Fifteen years ago vesicles appeared, from which a brownish fluid exuded on scratching. For the last six years the discharge has been milk-white, and is always worse in wet weather, and while the patient is walking about, when its amount may be half a pint per hour. At night it ceases to run, recommencing about an hour after the patient rises in the morning; but in dry or frosty weather it may occasionally be absent for a week or two. The veins of the affected limb are varicose, but no enlargement of the lymphatic glands can be detected. The author succeeded in controlling the discharge for two months by a long elastic stocking, the use of which, however, had to be discontinued, owing to severe lancinating pains in the thigh. Immediately on ceasing to use the stocking the uneasy sensations subsided, and the discharge commenced anew. After remarking that cases of this affection were extremely rare in temperate latitudes, Dr. Buchanan pointed out, by referring to several recent examples, that they were probably more frequent in warm climates. He cited, however, and gave an account of two unequivocal cases of the same affection, both dating from the seventeenth century, one of which, in a male subject, occurred in Germany, and the other, in a female, in France. While referring to various pathological theories, the author fully recognized the identity of the above disease with "chylous urine," or, as he would prefer to call it,

"white fibro-serous urine." He objected particularly to the theory which identified white fibro-serous discharges in general with chyle. He gave his reasons for believing that it was more natural to consider them as equivalent to the white liquor sanguinis—to transudations of the serum of the blood during its periodical milkiness after meals, but with certain modifications inseparable from the mode of its secretion. Thus, while the water, albumen, and salts, and possibly also the fibrin, would come from the blood directly, he showed that the cells present in the discharge must be derived from the secretory layer of the skin, or from the epithelium of cutaneous glands. He contended that the molecular base was unquestionably derived from the blood; but that the molecules could not be conceived to filter directly through the walls of the vessels without presupposing the existence of a uniformly and intensely milky serum while the discharge was flowing, even at long intervals after meals. To avoid this difficulty, it might be supposed that the epithelial cells of the glands of the skin had the power of separating, by a perverted function, fatty matter from the blood, much as the epithelial cells of the intestine are concerned in filtering it into the lacteals. The cells would then become gorged with fatty molecules, and the uniformly white colour of the discharge would be accounted for without its being necessary to suppose that the liquor sanguinis was ever milky except, as usual after meals. On this view, white fibro-serous discharges would depend immediately on deranged glandular action, and the foregoing case might be defined as a rare functional affection of the glandular apparatus of the skin. The paper was illustrated by specimens of the milky discharge, and by a drawing of the diseased surface.—*Med. Times and Gaz.*, Feb. 7, 1863.

28. *Urine in Hydrophobia.*—Dr. HELLER, in *Wien. Med. Wochenschrift*, gives the following analysis of the urine of a lad six years old, who died of hydrophobia. The quantity operated on was about one pound. Its specific gravity was 1036, and very acid. The sediment consisted of uric acid, and was in greater abundance than Dr. Heller had ever met with. No urate of ammonia was found in the sediment. Of albumen, and of carbonate of ammonia, there was only a trace. It contained no sugar. The uropheine and uroxanthine were slightly increased. In the clear urine was also contained much uric acid. The urea was greatly increased, and was equal in quantity to what is met with in meningitis. The chlorides were very slightly diminished; the sulphates greatly increased. The earthy phosphates were much, and the alkaline phosphates slightly, increased.—*Brit. Med. Journ.*, Jan. 3, 1863.

29. *Effects of Diet and Drugs in the Treatment of Diabetes Mellitus.*—Dr. ANDREW SMART gives the following results, obtained from a series of observations—in two cases of diabetes mellitus treated by Dr. Laycock, in the Royal Infirmary, Edinburgh—instituted with the object of determining the sugar-producing agency of certain articles of diet.

The following articles are arranged in the order in which they were found, Dr. S. states, to act as sugar producers:—

"1. *Sugar* (cane), whether used as an article of diet or medication, besides undergoing transformation into grape sugar, acted as a powerful diuretic and stimulant to the morbid production of sugar. It also greatly increased thirst.

"2. *Rice*, contrary to general belief, was next to sugar in its influence on the production of diabetic sugar and increase of urine. Its action in these respects was much greater than can be explained by reference to the proportion of starch and sugar which it contains.

"3. *Potatoes* were inferior to rice in their sugar and urine-producing powers, but exerted a markedly greater influence than the ordinary sorts of wheaten bread.

"4. *Gluten Bread.*—We have not succeeded in ascertaining the exact composition of the bread usually sold under this name. It is decidedly sweet to the taste (but this saccharine quality does not depend on admixture with sugar). It is also very palatable, and preferred by diabetic patients to ordinary bread. It has been much recommended in diabetes, under the belief that, as an article of food, it operated more mildly in exciting and maintaining morbid action.

This opinion was contra-indicated by repeated and careful trials, the results of which demonstrate that its influence as a sugar eliminator exceeds that of ordinary white and bran bread.

"5. *White Bread.*—The trials with this bread, as with the others, were extremely varied, but invariably with like results. It undoubtedly produced less sugar than gluten bread, but was superior in that respect to brown bread and oatmeal. It is interesting to know that the amount of sugar found in the urine invariably maintained a fixed relation to the combined proportions of sugar and starch contained in the bread, the proportion of diabetic sugar always exceeding that of the starch and sugar elements as two to one. Thus, for example, if the amount of bread taken in twenty-four hours contained, say 500 grains of combined sugar and starch, and no other substance interfered with the experiment, a careful analysis of the urine during the same period yielded, with remarkable uniformity, nearly double that amount, *i. e.*, somewhere about 1000 grains.

"6. *Bran Bread.*—This bread differed in no important particular, except in its milder action in the production of sugar. But this difference was trivial.

"7. *Oatmeal.*—The influence of this cereal, when given weight for weight with the others, was so decidedly less that there can be no doubt in placing it last in the list now given. It diminished the amount of urine while rather heightening its density, but, as an article of diet, it was not relished by the patients.

"8. *Eggs.*—When the patients were put on an exclusively egg diet, the amount of urine and sugar progressively diminished, and the latter would probably have entirely disappeared from the urine had it been possible so to restrict the diet for a sufficiently lengthened period.

"9. *New Milk* contains sugar, as sugar of milk; but, judging from all the trials which were made with it, we were led to infer that this constituent does not undergo glucose transformation. Under this, as in egg diet, the sugar progressively disappeared from the urine. But the great difficulty always experienced was, to confine the patients for some time to one or two kinds of food.

"10. *Animal Diet.*—When eggs, milk, fish, beef, mutton, and all other kinds of animal diet, were given either alone or in combination, the following results invariably followed: 1. Marked decrease in the elimination of sugar and secretion of urine, which was progressive with the continuance of the diet. 2. Sense of hunger and thirst greatly lessened. 3. Increased density of urine.

"11. *Vegetables*, such as cabbages and turnips, sensibly augmented the production of sugar, but to a much smaller amount than is generally supposed. They were also apt to derange the digestive system. Cabbage invariably produced diarrhœa in one of the patients, and in the other indigestion and flatus.

"12. *Cod-liver Oil and Fats.*—Their use was followed by the same results as were found in the animal diet trials; but they could not be taken by the patients for some time, or in considerable quantity, without inducing nausea.

"13. *Mixed Diet.*—The production of sugar under this diet, of whatever substances it may be composed, was found to be invariably proportional to the amount of sugar and starch contained in the articles which were used.[1]

"II. *Second Series of Trials to Determine the Influence of Remedies on the Elimination of Diabetic Sugar.*

"1. *Permanganate of Potash*, allayed thirst, lowered the density, but increased the amount of the urine and also of the sugar.

"2. *Sesquinitrate of Iron* stimulated appetite for food; did not allay thirst; did not materially influence the amount of urine, but increased that of the sugar.

---

[1] *Porter and Ale.*—It is generally supposed that all malt liquors very powerfully stimulate to the morbid production of sugar in diabetes mellitus; but the experiments made with ale and porter do not support that opinion. Their use, to the extent of twelve or twenty-four ounces daily, is attended with little more than an appreciable increase in the amount of sugar. The rate of increase, as in the other articles, was ascertained and recorded.

"3. *Glycerine* markedly increased thirst and the amount of urine; lowered density of urine, but total amount of sugar greatly increased.

"4. *Chloroform.*—This was exhibited by inhalation, which was repeated every two hours during the experiment. Quantity of urine greatly increased; its density lowered, but total amount of sugar in twenty-four hours increased. Chloroform increases sugar simply by acting as a diuretic.

"5. *Sulphuric and Chloric Ethers.*—Both these agents operate as chloroform, but in a much less marked degree.

"6. *Strychnia.*—The experiments with this powerful agent were begun by administering $\frac{1}{10}$th of a grain thrice daily, and the dose progressively increased until its physiological action on the nervous system became incipiently apparent.

"The result was a progressive and commensurate decrease in the amount of urine and sugar. The patients' diet during the course of this and the other trials of remedies was uniform. The patients' general health was good, and they gained weight."—*Med. Times and Gaz.*, Feb. 14, 1863.

30. *Diabetes.*—Dr. MÜLLER, of Hanover, read a paper before the Congress of German Naturalists and Physicians at their last meeting, on diabetes, with details of thirty-one cases observed by him: twenty-three of the patients were men, and only eight women. Amongst the causes, masturbation was most frequent. Twelve of the patients died, nine of them rapidly, of tubercular disease, and three of Bright's disease. As regards the treatment, animal food and gluten had proved very unsatisfactory, and a mixed diet was far preferable. Tannin, either alone, or with aloe and rheum, gave good results, and small doses of opium at night were advisable. The use of the thermal springs of Carlsbad produced amelioration in every one of the cases; but the benefit was not permanent: in one case it lasted for nineteen months, in another for ten months. The largest quantity of urine observed amounted to nineteen and a half quarts, the largest quantity of sugar to ten per cent.; the highest specific gravity was 1.058. In five cases there was amblyopia and morbus Brightii. An animated discussion followed the reading of this paper, and several of the Carlsbad physicians communicated their experience on the use of the waters of this place. Professor Seegen said that he had treated more than forty cases of diabetes with Carlsbad water, that there had been a diminished amount of urine and sugar, and the weight of the body had become augmented, but a complete cure had never been effected. Most of the patients in question used the Carlsbad treatment for several years successively, and each time with benefit. The improvement was generally rapid, and lasted for a considerable time. Dr. Fleckles said that, if diabetes was complicated with anæmia, the use of Franzensbad, Pyrmont, or Spa, was advisable after a course of the Carlsbad treatment.—*Med. Times and Gaz.*, Dec. 13, 1862.

31. *Action of Sesquichloride of Iron on Phthisis.*—Dr. RICHARD PAYNE COTTON administered the sesquichloride of iron in twenty-five cases of uncomplicated phthisis furnished by his own wards in the Consumption Hospital. Of this number, eight were males, and seventeen females. Eleven were in the first, four in the second, and ten in the third stage of the disease. None of the cases presented any very remarkable feature, all of them being examples of the ordinary run of patients affected with chronic consumption, care having been taken to exclude those in whom there existed either any special complication or secondary affection which demanded a different treatment.

The dose consisted of ten or fifteen minims of the tinctura ferri sesquichloridi administered in water two or three times a day, and was continued for periods varying from three weeks to four months. Cod-liver oil was also taken sometimes by a few of the patients; but, as a general rule, this substance was avoided, at least temporarily, with the view of not complicating the result.

Twelve patients improved greatly, five improved slightly, and eight experienced no relief whilst under treatment. Ten of the seventeen more or less improved cases did not take any cod-liver oil; but, by subsequent observations, it

was sufficiently evident that the greatest good was brought about by the combined influence of these two substances.

Were I to be asked from which of the ten medicinal agents already experimented upon, I had observed the most benefit, I should unhesitatingly fix upon the sesquichloride of iron. For some years, indeed, I have been in the habit of using this substance extensively, both in private and hospital practice, and some of the most happy results I have met with in the treatment of phthisis have certainly taken place during its administration. In no instance have I seen any reason to connect with its use the occurrence either of hæmoptysis, or any other active symptom. In passive hæmoptysis, indeed, I have often found it a very useful remedy; whilst it often helps to check excessive secretion, whether from the skin or the mucous surfaces.

The following are Dr. Cotton's conclusions, derived from his experience, as to the effects of iron upon phthisis:—

"1. That iron is a very valuable remedy in consumption—perhaps more valuable than any other with which we are at present acquainted.

"2. That of the numerous preparations of iron, the sesquichloride is the best, its astringent nature being generally well suited to many symptoms of the consumptive patient."—*Med. Times and Gaz.*, Jan. 24, 1863.

—

32. *Use of the Alkaline Lactates and of Pepsin in Indigestion.*—Dr. Pétrequin, of Lyons, advises the employment of the alkaline lactates, and especially those of soda and magnesia, in the treatment of the functional disorders of the digestive canal. He was induced to try these salts in the treatment of dyspepsia, because they are natural to the digestive tube, and the alkaline compound which results from their use is an integral part of the chemical elements of digestion. Practical investigations have confirmed these theoretical views, and an experience of twelve years has convinced Dr. Pétrequin that the use of the alkaline lactates promotes the flow of the digestive juices, regulates their secretion, renders the digestive function normal, and restores the languid or perverted action of the stomach and intestine by enabling them to produce regularly the liquids necessary for the digestive process. The *lactate of soda* is very soluble in water, and crystallizes only with difficulty, and as it is very deliquescent it is prepared with sugar, which enables it to be preserved. The *lactate of magnesia* has been obtained in silky masses, which are very light, very white, and composed of very slender crystals; it is unalterable in the air, of sparing solubility, and without smell or taste. Dr. Pétrequin employs the alkaline lactates in the disorders occurring in any of the three principal phases of digestion—namely, the buccal, the stomachal, or the intestinal. In the first, the disorder may depend either on the alteration of the saliva, which may become acid, or on the diminution of the secretion of this fluid. In both cases the patient should take, before meals, two or three pastilles, which should be slowly melted in the mouth, and the same should be done after meals. The disorders which correspond to the stomachal or gastric phase of dyspepsia are more numerous, and require some modifications in the use and administration of the medicine. In the acid dyspepsia, Dr. Pétrequin advises a combination of lactate of magnesia and of lactate of soda with sugar; and in what he calls neutral dyspepsia, which he attributes to deficiency of the gastric juice, he combines pepsin with the powders or pastilles. During intestinal digestion, the alkaline lactates may still be advantageously employed, although the functional lesions of the intestine are generally less easily accessible to our remedies than those of the stomach. "We know," says Dr. Pétrequin, "that magnesia produces excellent results in the diarrhœa of children at the breast, and the alkaline lactates are no less efficacious. I have also observed their curative powers in the diarrhœa which supervenes in convalescent patients, when they resume the use of food, and when their stomach is still weakened. I have also several times employed them successfully in the diarrhœa of persons who were enervated by excessive fatigue; and I have observed the same results in enteralgia, enteric flatulence, and the purging which is symptomatic of intestinal indigestion."—*Brit. and For. Med.-Chirurg. Rev.*, Jan. 1863, from *L'Union Médicale*, Aug. 21, 1862.

33. *Tænia treated by Areca Nut.*—Dr. EDWIN MORRIS communicated to the Midland Branch of the British Med. Assoc. the following case of this:—

John T., aged 46 years, for several weeks past had been losing flesh, had occasional headaches, nausea, and feeling of faintness, with loss of appetite. The month of April last, he had passed several pieces of tapeworm. After fasting from breakfast the previous day on April 30th, at 6 A. M., four drachms of powdered areca nut was taken in milk. Within two hours afterwards he passed six yards and a half of worm. For more than a week afterwards, no more worm coming away, four drachms more of the areca were taken in a similar manner. Within an hour six yards more of worm were passed. From the flat regular size of the worm, it was evident that the head had not yet been expelled. After previously fasting, a purgative was given; and early the next morning six drachms of the areca were given as before, and in a quarter of an hour two yards and a half more worm were passed alive, making altogether fifteen yards. Upon examining the worm, it gradually tapered down to a small bulb about the size of a pin's head. The man has been much better since, and no more joints have been passed.

Dr. Morris's attention was first called to the use of the areca nut in tænia by the article of Dr. Barclay in *British Med. Journ.*, Aug., 1861.

Dr. M. remarks that for the expulsion of tapeworm a variety of remedies have been used—and successfully. Those, however, which have been found of the greatest service have been oil of turpentine, kousso, oil of male fern, and lastly, areca nut. Whatever remedy is used, it will be utterly useless unless the head is expelled; for the worm renews itself rapidly after portions of it have been removed, by the formation of new joints at its neck; and will very soon regain its original size. It therefore follows that those medicinal substances which expel the head, are the most valuable. It is a singular fact that few medical men have ever seen the head of the tapeworm, notwithstanding that the disease is frequent enough. * *

If you will take the trouble to examine the preparation I have placed before you, and observe the thread-like substance of the neck to which the head is attached, you will not wonder at the difficulty there is in finding the head, and how rarely it is obtained; you will be more likely to succeed in expelling the head, if a brisk purgative is given before the areca is taken.

I was fortunate in having obtained so long a piece of the neck of the worm, as it enabled me to easily find the head when placed in water; having removed the head with a portion of the neck attached, and placed it under the microscope with a one-inch power, I readily examined it as a transparent object. The neck is narrow and flat, terminated by a small bulb (cephalic bulb) with black specks, which is the head of the worm; upon carefully examining the specks, they are found to be the four suckers, and are funnel-shaped and easily recognized. The necks of the two extreme suckers ramify in various directions, and appear to join the other suckers. Upon using a higher power (Smith and Beck's fifth) several hooklets may be seen, by which the worm attaches itself to the mucous membrane of the bowel before applying its suckers. I have made a sketch of the head as it appears under the microscope, which gives a tolerably accurate representation of the head with its four suckers and hooklets.

[The seed of the common pumpkin beaten into a pulp with sugar, and taken in the morning fasting, is a very reliable remedy for tænia. We have used it with complete success.—EDITOR.]

SURGICAL PATHOLOGY AND THERAPEUTICS, AND OPERATIVE SURGERY.

34. *Traumatic Tetanus successfully treated by Nicotine.*—In our previous number (p. 221) allusion was made to a case of tetanus successfully treated at Baggot St. Hospital by nicotine. Mr. TUFNELL has since communicated to the

Surgical Society of Ireland a history of the case, which we extract from our contemporary, the *Dublin Medical Press* (January 7, 1863):—

"J. D., æt. 42, a tall, muscular man, a sewer maker, of very intemperate habits, was brought to the City of Dublin Hospital on the evening of the 28th of February, 1862, suffering from a severe compound fracture of the right radius, three inches above the wrist. The accident had occurred about twenty minutes before admission, and was occasioned by the falling of a heavy flagstone upon the forearm. There was a good deal of laceration of the soft parts, and considerable hemorrhage. The wound, which was three inches long and triangular in shape, had its base to the ulna, and was filled with blood and clay; the upper end of the lower fragment of the radius was thrown outwards upon the ulna; the hand was pronated and curved inwards.

"The wound having been carefully cleansed, the fracture was adjusted, and the arm placed upon a pistol splint; water-dressing with flannel-tailed bandage surrounding all. Wine and an opiate were given. Everything went on well until the evening of the 12th of March, when the patient said that he thought he must have caught cold, as he had pain and soreness about the jaws, with difficulty of mastication. He had also a peculiar tendency to sigh. Shortly afterwards he complained of pain in the left mammary region, and the abdominal muscles, when examined, were found somewhat tense. There was at this time no rigidity of the forehead, eyelids, or mouth. The pulse was soft, regular, and natural at 68, the respiration normal, and the bowels had been acting regularly. He was ordered, however, a bolus of five grains of calomel with one drachm of compound powder of jalap.

"On the following day (13th), the facial muscles exhibited the characteristic contractions of tetanus. The trismus was now determined, and the cervical muscles, especially upon the right side (that of the accident), engaged. The right rectus abdominis was more tense than the left. The bowels had been freely acted on by the aperient, and the discharges were not dark.

"He was now ordered to take one drachm of chloroform agitated with an ounce and a half of linseed tea every four hour, and a bag of ice directed to be applied to the cervical spine. The wound was looking healthy, and beginning to cicatrize at the edges.

"Upon the 14th there was an advance in the symptoms which seemed to be kept partially at bay only by the chloroform. The muscles of the neck and abdomen had become exceedingly tense, and there was pain through the attachments of the diaphragm. The muscles of the extremities, too, were now attacked by clonic spasms. The pulse had increased. Chloroform was continued.

"Upon the 15th he was worse. The masseter muscles and sterno-mastoids were very rigid, and the respiration was rendered difficult by the viscid mucus which accumulated in the bronchi, and could not be got rid of by expectoration. (He had previously suffered frequently from bronchitis.) He could swallow liquids, but with great difficulty. As the bowels had not acted since the 13th, a purgative enema was ordered, and the chloroform directed to be given more frequently; every third or second hour as required.

"On the 16th the symptoms were unaltered, but the pulse was becoming frequent, rising to 90 during the paroxysms of pain. The chloroform having been administered for three days, and the case not beginning to improve, it was determined to employ nicotine, and the Rev. Professor Haughton having kindly brought some of that prepared under his own direction, the strength of a single drop of which is equivalent to 23.2-10th grains of Virginian Cavendish tobacco, the first dose was administered at eight P. M.: one drop being dissolved in a dessert-spoonful of white wine mixed with an equal quantity of water. The pulse, prior to the nicotine being given, was 72; it speedily rose to 84, and within *forty seconds* of the medicine being swallowed, the whole surface of the body was bedewed with sweat. The welling up of the perspirable fluid through the pores of the skin was remarkable, it being absolutely perceptible; these drops of fluid being so large that they might easily be flicked with the hand from off the forehead. The spasms almost immediately relaxed, the corrugation of the brow and frightened expression of countenance disappearing. This improvement was, however, only transient, and the nicotine was repeated every two

hours up to two A. M., when, in consequence of the unpleasant taste and nauseating effects, the patient refused to take any more. At six A. M. he consented, however, and continued to do so regularly every two hours, the dose being increased to two drops, or nearly a drachm of Cavendish tobacco. The stools brought away by the turpentine injection were for the first time dark, green, and fetid. From the commencement of the attack a most liberal allowance of nourishment, in the shape of essence of beef, jelly, and wine, had been allowed, which was still continued, although swallowed with great difficulty, and got down between the wedges which separated the molar teeth. Fomentations of a strong decoction of tobacco were applied over the abdomen, and with apparently some good effect; a liniment of croton oil was also rubbed over the surface; and the wounded arm enveloped in a soft anodyne linseed poultice, made with a drachm of the extract of belladonna dissolved in a pint of boiling water.

"18th. Seven days had passed over since the first symptoms had exhibited themselves and two since the nicotine had been employed. All matters were now aggravated. The patient had become ungovernable, and would take no medicine by the mouth, and fluid of any kind he could hardly swallow. The spasms were increased in intensity, of opisthotonic character, and recurring at intervals of eight minutes. The breathing was very quick and laboured, being 44 per minute, and the face congested from mucus, which was kept churning up and down in the trachea; the pulse 130 in the minute; the surface of the body wet and cold. As it was impossible to give the medicine by the mouth, a couple of drops of nicotine were added to a glass of wine and water and injected into the rectum and held. The spasms relaxed under its influence, the power of expectorating returned, and the heart's action became regular again. Towards the afternoon delirium set in, and the patient now acquired full voluntary power over the muscles of the arms and legs. He endeavoured to get out of bed, and struck wildly at those around him, and was so violent that it was necessary to put him under the influence of chloroform by inhalation, which was soon accomplished, to the great relief of the patient, who afterwards rested quietly for some time. He was conscious on awaking, and asked for water to be given him to drink. He was, however, so much exhausted that two ounces of whisky, with an equal quantity of warm water, were thrown up the rectum and retained, after which he took some strong beef-tea by the mouth. During the violence of the patient, the fractured radius became bent almost to a right angle with the ulna, and the deformity of the arm was consequently extreme. An attempt was now made to remedy this deformity, but such aggravation of the symptoms was immediately produced that it was necessary to discontinue the effort, and the arm allowed to assume the position the patient chose, a scruple of watery extract of opium dissolved in four ounces of water being first applied (by means of lint saturated with this lotion) to the wound. The bowels being now confined, an enema of turpentine, assafœtida, and castor oil was ordered to be administered, which secured the discharge of some dark-green fetid stools.

"19th. The nicotine in two-drop doses was now injected by the rectum regularly every second hour, the patient being supported by wine, beef-tea, and essence of meat, introduced through the opening left between the wedges placed between the molar teeth. Tobacco fomentations were applied to the abdomen of the strength of a drachm to a pint of boiling water.

"20th. Patient complained to-day of great pain in the biceps muscle of the affected arm, and also under the scapula of that side. Suffocative catarrh was also present. A mustard plaster enveloping the whole chest was ordered to be applied, and the whisky enemeta repeated, the nicotine being continued in injection every two hours. The discharge from the wound was now purely sanguineous, and all attempt at cicatrization had for some while ceased. The retraction of the anus was now so great as to render the introduction of the enema-tube an act of much difficulty.

"22d. The fifty-sixth drop and the last dose of nicotine administered to-day, the countenance being placid, and no spasm having occurred for some hours. There was great aching pain in the lumbar region and soreness of the muscles generally, especially on the right side of the body. The urine passed to-day contained a highly lateritious deposit, but did not possess the smell of nicotine;

patient very weak. He was now ordered an injection consisting of five grains of quinine, the yelk of an egg, an ounce of whisky, and three ounces of milk to be administered every sixth hour.

"23d. The power to open the mouth to some slight extent had returned. The discharge from the wound showed signs of purulent secretion.

"24th. Patient not so well; pulse varying in force and rapidity from 104 to 140; he had pain in the diaphragm and occasional spasms; the discharges from the bowels brought away by an oil draught given over night were black and offensive. The aperient was repeated by the mouth with a full dose of opium shortly after.

"26th. Better, though very weak.

"28th. Slept well; was free from pain and spasm, and the wound looking florid and healing in. The quinine injection repeated night and morning.

"31st. Considerable soreness of the abdomen and diaphragmatic region being complained of, a large belladonna plaster was directed to be applied over it.

"From this date the recovery was gradual and progressive, and he was discharged from hospital in good general health, and with partial use of the injured arm, on the 10th of May.

"That the man owes his life mainly to the narcotine, I think must be fairly assumed, for under the use of chloroform he was gradually getting worse, and the spasm not coming under control. It is true that for a considerable period after commencing the narcotine treatment the disease progressed in intensity; but still a decided impression and relaxation of spasm followed upon each separate employment of the remedy. To chloroform, however, I was greatly indebted for the power which it gave me in controlling the violence of the delirium, and obtaining for the patient, and his attendants, rest."

35. *New Methods of Discovering the Presence of a Ball or other Metallic Body within a Wound—Nélaton's Porcelain Probe—Favre's Galvanic Probe.*—The difficulties which have attended the diagnosis of General Garibaldi's wound, and the contradictions of surgical opinion, have had the good effect of stimulating ingenuity for the devising of new and more certain methods of physical exploration. It will be recollected that the positive opinion of the presence of the ball in Garibaldi's wound given by M. Nélaton was based upon the dull character of the sound elicited when the probe struck against the hard substance at the bottom, which was very different in his experience from the clear sound elicited from a piece of necrosed bone under similar circumstances, and also upon the sensation imparted to the hand, which bore no resemblance to that imparted by the rough surface of a carious bone. On his return to Paris, he devised, in conjunction with M. Em. Rousseau, a contrivance by which a portion of the ball might actually be brought away, so as to convince those who differed from him in opinion. This instrument consisted of a probe, furnished at the extremity with a little sphere of unglazed porcelain or biscuit-ware, about the size of a small pea. On bringing this sphere in contact with a leaden ball, and exercising a little rotatory friction, it acquires a stain of the metal, which subsequent contact of the soft parts and morbid secretions fails to remove. There is this additional advantage, that the portion of metal thus removed may be dissolved off, and made the subject of chemical tests. It was by the use of this little instrument that Dr. Zanetti convinced himself of the presence of the ball with sufficient certainty to lead to a determination to extract it. The credit of another contrivance, more complicated but not less ingenious, is due to the fertile brain of M. Favre, Professor of Chemistry to the Faculty of Sciences of Marseilles. The principle involved is the different conducting power for electricity between a metallic substance, on the one hand, and the fluids and tissues of the body, on the other. Thus it happens, that if the conducting wire of a feeble galvanic circuit connected with a galvanometer be broken, and a bullet or other metallic body be interposed, on the completion of the circuit the needle will be strongly deflected. This would not be the case on interposing the ordinary tissues of the body. With the assistance of M. Favre, Dr. Fontan, a military surgeon at Marseilles, has made experiments to test the efficiency of the plan proposed by the former. The apparatus used was as follows: 1. A Smee's bat-

tery of a single pair of plates, so feeble as to be unable to produce any sensible amount of electrolysis with the animal tissues. 2. A galvanometer. 3. A probe, formed in the following manner: it consisted of two parts, one of which is received into the other, which forms thus an outer casing. The internal portion, or galvanic portion, is a straight metallic probe, through the length of which pass, packed in silk, two metallic wires, each terminating in a steel needle, and isolated and firmly fixed beyond the extremity of the probe by means of a little cone of ivory. These wires are intended to conduct the galvanic current, the galvanometer being placed in the course of the intended circuit. For this inner probe, there is provided an external metallic casing, so constructed as to permit the galvanic probe to be slid within it, and perforated at its extremity with two holes, through which the needle-points of the conducting wires can be protruded. There are various little arrangements of grooves, slits, and a screw to insure accuracy of adaptation between the galvanic probe and its case. In using the instrument, the internal probe is retracted and fixed by the little screw, and the instrument is then employed in the ordinary way as a probe. On the solid substance being arrived at, the screw is loosened, the needle-points protruded, and brought into contact with it, by sliding down the internal probe. If the substance be metallic the circuit is established, and the galvanometer deflected. The first experiments were made with wires unprovided with needle-points, the addition of which were found essential to success, inasmuch as they readily penetrated any soft tissues or adventitious substances, pieces of clothing, leather, etc, which might chance to be interposed, and also overcame the difficulty likely to result from oxidation of the surface of the metallic substance, etc. The use of a little friction with the point of the sound, or a gentle percussion upon it, never failed to establish the galvanic current. M. Fontan suggests that, by modification of this probe, the principle involved might be applied to other purposes of diagnosis, as where the presence of metallic bodies in the canals or mucous cavities of the body was to be detected.—*Med. Times and Gaz.*, Dec. 13, 1862.

—

36. *Wire Compress: a Substitute for the Ligature.*—Mr. JOHN DIX read before the Royal Medical and Chirurgical Society (Jan. 13, 1863) an account of the wire compress, a modification of the method of arresting hemorrhage, devised by Dr. Simpson. This "acupressure," he said, had been tested by but few surgeons of note; and in London, especially, it is almost unknown and ignored. Although, probably, a real improvement on the ligature, it undoubtedly labours under certain inherent disadvantages, most, or all, of which (it is believed) are obviated by the use of a fine wire of iron or of silver, instead of the steel needles of Dr. Simpson. This idea was first promulgated in a paper on "Acupressure," published in the *Medical Times and Gazette* of June 2, 1860; and first put to proof in a case of amputation of the finger, September, 1860. In this operation two arteries were secured by wire, which was removed on the third day. The case did well: there was no bleeding, and very slight suppuration. In the next case—Chopart's amputation, performed April 26, 1861—five wires were applied on as many arteries: four of these were removed in forty-eight hours, and the other on the fourth day. It was found that the wire was easily applied, as easily withdrawn, and entirely effectual for the purpose it was intended to serve, namely, the arrest of the bleeding from the cut vessels. This patient, being the subject of constitutional syphilis, did badly. There was sloughing of the entire surface of the wound, and the flap was totally destroyed, notwithstanding which there was no hemorrhage; but she died, on the thirteenth day after the operation, of pyæmia. *Case* 3 (September 21, 1861). In an amputation of the thigh, done after Mr. Luke's method, there were seven bleeding arteries. Upon five of these the wire was used, and, with the femoral artery, the femoral vein was intentionally included; two very small branches were treated by torsion. This case did well. Seventy-two hours after the operation, four of the *presse artère* wires were withdrawn with perfect ease and without bleeding. The one on the femoral remained five days, when it, too, was removed without any difficulty and without a trace of blood. There was but little suppuration, and an excellent stump was the ultimate result. These

cases prove that this mode of securing arteries is practicable, efficient, safe, and manageable. It is also believed to possess a certain positive superiority over the ligature, as the following comparison shows: A ligature in a wound impedes union and induces suppuration. Cure, by primary adhesion, of a large wound, as, for instance, an amputation, is an event of extreme rarity, and this because of the ligatures. A thread of silk is, in fact, a miniature seton, and the whole number required in an operation make up one of considerable size, and can scarcely fail to lead to the formation of pus. Again, the ligature of necessity excites ulceration of the artery upon which it is tied; it cannot in any other way be got rid of. This is another unhealthy process, antagonistic of repair. In applying a ligature, the end of the artery is drawn out from its sheath, by which its nafural connections are disturbed, and its vasa vasorum broken up; its coats also are lacerated and bruised. The ligature remains for an indefinite time, long after it is useful or necessary, and it is not unfrequently pulled at by the dresser before it has become detached. Its knot, often deeply buried between the flaps, cannot be withdrawn without tearing through adhesions, or damaging the granulations. All these are serious obstacles to the healing process both in the stump and in the artery itself, and must protract the period of cure. Moreover, the following is an interesting and noteworthy formula: Pyæmia is the offspring of purulent secretion, of which the ligature is an efficient and probable cause. Bleeding arises solely from ulceration of an artery, of which again the *primum mobile* is the ligature. From one and all of these objections to the ligature the "wire compress" is almost or altogether free. Thus, in accordance with a well-known pathological law, it being a metallic substance, is freely tolerated by the living body, and has little or no tendency to excite suppuration or irritation. Neither does it cause ulceration of the artery. This is positively affirmed from actual observation of its effect as witnessed in the sloughing stump before alluded to. It is applied without interference with the natural relations and vital connections of the vessel. It is removed at any time, according to the will and judgment of the surgeon, without disturbance to the reparative action going on in the artery and in the rest of the wound, without futile premature attempts, and almost without pain to the patient. It is not liable to lose its hold, or to become detached too soon, as not unfrequently happens to a ligature applied upon a brittle or sloughing artery. Twigs of nerve accidentally included in the embrace of the wire are not injured and excited as by the tight strangulation of the ligature, and, if thought advisable, the veins are easily and safely occluded, along with the arteries. Although this has been spoken of merely as a modification of acupressure, yet it is believed to be a decided and important improvement on "Simpson's skewers," as the needles have been irreverently called, and which are fairly open to the following objections: When several of them are required, the stump resents, as it were, being thus pierced through and through in various directions. From the injury thus inflicted, and from the obstruction to the capillary circulation caused by the pressure of the unyielding steel, arise much tension, œdematous swelling, and great pain; the pain, especially, has been found a very serious evil. Again, their projecting ends, and the puckering they cause in the substance of the flaps, interfere very much with that accurate adjustment of the cut surfaces and edges which so greatly aids the chances of union by adhesion. The wire is free from all these shortcomings. It is thus applied: Take a piece of surgical wire six or eight inches long, and thread each end thereof upon a straight needle. Seize the bleeding mouth of the artery with forceps, and pass one of the aforesaid needles close on each end of the artery just mentioned, about a line above the point of the forceps, directly down through the substance of the flaps, so that they emerge at the cuticular surface, about half an inch distant from each other. Draw them both through together till the curve of the wire compresses the artery on the face of the flap. Now get rid of the needles by clipping through the wire close above their eyes, and also detach the artery forceps. Place a piece of cork, cut for the occasion, upon the skin, between the points of exit of the wire, and over this twist the wire tighter and tighter until the bleeding is arrested. Lastly, cut off the superfluous wire. All which is done quicker than described. Two or more arteries lying

near together may be embraced by one wire, and, as has been said, the veins may be included or excluded at will. The wire should be either of silver, or, what is much cheaper and equally manageable, of the finest and softest passive iron. The generality of wire as used for sutures is too hard and stiff. The needles are about three inches in length, straight, and three-edged, with an eye adapted for carrying wire. Special care is necessary in threading the wire that it is kept perfectly free from all twisting. The forceps are used, not to draw out the artery as when a ligature has to be applied (this, indeed, is to be particularly avoided), but merely as a guide to mark the exact position and course of the vessel. The cork is necessary to protect the skin from the pressure of the wire. The withdrawal of the wire, which at first sight appears an insuperable difficulty, is perfectly simple and easy. It is thus effected: Clip the wire close to the edge of the piece of cork, and straighten out the curve it has formed, at its exit from the skin. Remove the cork, and apply instead the tip of one finger, with which press firmly upon the flap, making traction gently and gradually upon the other end of the wire. If this were roughly and hastily done, it might break up the adhesion which it is presumed has taken place between the surfaces of the flaps, and it is quite possible that a flexure in the wire might lacerate the artery in passing over it; but it is certain that none of these evils need happen with ordinary care and tact. As to the period of withdrawal, further observations are desirable; but it has been clearly shown in numerous cases of acupressure, that for small vessels a few hours of compression is sufficient, and for the largest arteries a much less time than might be supposed. However, as a general rule, it is not desirable to disturb a wound in any way for from twenty-four to forty-eight hours; at the end of which time all wires commanding the secondary branches may be safely removed, and probably also from the large arteries; but, as a matter of prudence, it is well to keep a check upon such a one as the femoral for three or four days at least. The descriptions hitherto given apply particularly to amputations; but the wire is equally applicable to many other operations. In a postscript to this paper was related a case of excision of the testicle, in which it was used most satisfactorily upon the vessels of the cord. Two wires were required, and they were removed on the fourth day. Also a case of excision of the breast, in which three wires were applied, and removed in twenty-four hours. The wound, which was six inches long, healed kindly and rapidly, almost without suppuration. Suppose the femoral artery needs to be secured for popliteal aneurism. The wire would be passed under the artery by means of a tubular aneurism-needle made for the purpose, brought out through the integument at a convenient situation, and then twisted upon a cork in the usual way. This same artery, cut in amputation, is securely closed in three or four days by the action of metallic pressure; consequently, in three or four days the wire might be removed. Meanwhile, it has not caused suppuration, or impeded the union of the wound, which ought, therefore, by this time, to be completely healed; and more important still, the artery is not cut through, as by the ligature, but its coats remain intact, and bleeding is impossible. It will probably be found that the pedicle in ovariotomy may be conveniently dealt with by this method, the arteries being secured individually, and the entire stump also fixed to the abdominal wall by another wire. This idea has been already promulgated by Mr. Spencer Wells. The paper was illustrated by models.

Mr. FERGUSSON said that the author's paper ought not to pass without remark, as the subject was novel to the Society, though not new to the surgical department of the profession. The paper (he said) was very interesting and very clever, and yet the materials of it were not sufficient to prove the author's point, as five cases only were reported. These, if the subject had been quite new, might have been brought forward. From the cases adduced, he had not learned that there was, in the smallest degree, any advantage over the ligature, which, as a practical surgeon, he was not disposed to set aside. It had been brought forward by a gentleman of great talents, but he (Mr. Fergusson) had not seen, or heard, nor found anything to induce him to imagine this process superior to the ligature. The cases related were very few, whilst ten times that number of the employment of other means might be brought forward. As

regards the amputation of the finger, every one knew that such cases would do perfectly well with the ligature. In the case of partial amputation of the foot, he did not suppose that the sloughing was due to the wire; but the fact, that there was no hemorrhage, did not prove that the wire was better than the ordinary method of securing bleeding vessels. As to the plan adopted with regard to the thigh, that was not new. Professor Handyside had tried this method. The history of the case did not vary from the ordinary run of such amputations. He had tried this plan repeatedly, but should require much greater proof of its value than he had yet heard before he should attempt to secure large arteries, as the femoral or the brachial, on this plan. He noticed that in this paper, as also in many others on the same subject, there was a constant attempt to decry the ligature, one of the grandest things in surgery. Great pains had been taken to test the value of the ligature, and he thought that the question had been set at rest. One point urged against it was, that it gave rise to suppuration, and thus favoured pyæmia. Of this he was doubtful, as he had often observed that patients, after operation, had feverish symptoms which gave rise to great anxiety, but which passed off as soon as suppuration set in. In fact, he always calculated on suppuration as a relief to the patient. He thought that the ligatures acted as vents for the discharge of pus; and, as regards their preventing healing by first intention, he would say that the advantages of this kind of union were overrated. Suppose the stump did heal by first intention, it could not be used for weeks—for months, as it was, in a great measure, new material, which would not bear pressure. In fact, the ligatures were of advantage in this way, that they prevented the patient using his limb too soon.

Mr. Dix said that he rose with much diffidence, and especially so because his reply must be chiefly directed to the remarks of Mr. Fergusson. "Of course (he said) I feel myself quite unable to cope in surgical discussion with so great a surgical authority; nevertheless, it is somewhat encouraging to find that such an opponent, though uncompromising and inclined to be severe, finds so few real and substantial objections to the subject of my paper. His lengthened argument amounts simply to this, that he is content with the ligature. In support of this position, he tells us that he thinks it a matter of little moment, whether a wound heals by primary union or by suppuration. In fact, of the two, he seems to prefer the latter. Sir, I have come a considerable distance to attend this meeting, and I certainly shall not return without having gained a new idea. This doctrine is altogether novel to me. It is utterly subversive of all I was taught as a student, and is entirely opposed to my own somewhat extensive observation and experience. I think it will find but few supporters in this room, or amongst the profession at large. We have been told that, as regards the time at which a stump becomes useful, little is gained by primary union, and, in the same breath, it is somewhat inconsistently stated that suppuration is inevitable—that an amputation cannot be healed without it. This, sir, is a fallacy. Primary union is rare, no doubt, but not impossible. I have seen it myself, and others have here and there met with an isolated case. About five years ago I amputated the leg just below the knee. In this case, although ligatures were used, there was never a trace of pus; in about six days this stump was entirely and soundly healed. I must say that I thought this a very good thing, and, with all deference to the great authority in opposition, I must still retain my humble opinion, that it is far better than a suppurating stump. I am fully persuaded that the chief reason why this good result does not oftener occur is, that those surgeons who doubt its possibility do not adopt the best means to favour its occurrence. He who hopes most and attempts most will attain most, and I have given reasons for believing that there is no surer step in this direction than the disuse of the ligature. Pyæmia, we have also been told, is not necessarily connected with the presence of pus. This may be so. It may be that there is such a disease as idiopathic pyæmia, but it is a doubtful point and difficult of proof. A far more certain thing it is that pyæmia can mostly be traced to a pyogenic source, and it is well known by fatal experience that it occurs most frequently in conjunction with an unhealthy suppurating stump. Hence I have argued in favour of endeavouring to prevent or to lessen

the duration of suppuration. My cases, I grant, are few, because my opportunities are not frequent, but I may claim for them that they have been carefully and anxiously worked out under considerable difficulties and with a weighty responsibility; and I am perfectly convinced that they afford good ground for believing that this little device is likely to be of real practical utility, or I should not have appeared here to-night. But I plead not guilty to the charge of having exaggerated the evils of the ligature, or of having made too much of my own cases. I have expressly and emphatically stated that I have as yet obtained no better results than might have been obtained by the use of ligatures, though I hope ere long to do so. That the ligature is an old friend, well-tried and trustworthy—has been successfully used for years, and does well enough—that somewhat similar attempts to find a substitute for it have failed—belong to that kind of reasoning by which all abuses are defended, and all attempts at improvement are ignored and abolished; they are not of much weight on the present or any other occasion. Mr. Barwell also seems to have a friendly leaning towards the ligature; but his dread of sloughing, from the strangulation produced by the wire is, I can assure him, purely imaginary. If he will try the experiment, he will probably be surprised to find how little pressure is needed to stop the bleeding from even a large artery. The needles of Dr. Simpson do produce injurious and inconvenient compression, but the wire compress does not, and it is one of the advantages I have claimed for it over the needles. I have fully shown that it is safe, and effectual, and manageable; and I have no doubt, from the attention which has been given to my humble efforts to-night, and from the ventilation which the subject has here received, that the wire compress will soon be put to the proof by others who have better and more frequent opportunities than I have; it may be, perchance, to the advancement of the science of surgery, and to the benefit of suffering humanity." —*Med. Times and Gaz.*, Jan. 24, 1863.

37. *A Symptom of Fracture of the Base of the Skull.*—In a communication made to the Surgical Society of Paris, M. DOLBEAU has called attention to the presence of ecchymosis of the pharynx at its upper part as a sign of fracture of the base of the skull. In a case admitted into the Bicêtre, where death took place twelve days after the receipt of the injury, the patient complained, when sensible, of pain in swallowing. On examination after death, the base of the skull was found fractured; and there was infiltration of blood behind the pharynx, from the occipital bone to the second cervical vertebra; the mucous membrane of the pharynx was also evidently ecchymosed. In two other cases in which the symptoms pointed to injury of the base of the skull—contusion in one, and fracture in the other—and in which recovery took place, pain in deglutition was complained of; and, on examination, in each case there was found to be ecchymosis of the posterior wall of the pharynx. The portion of the pharynx in which the ecchymosis occurs is rather difficult to be seen; it is limited by the bone of the skull above and the velum palati below, by the vertebral column behind, and the posterior orifice of the nares in front.—*British Med. Journal*, June 7, 1863, from *Presse Méd. Belge*, 27 Avril, 1862.

38. *Recovery after Transfixion of the Thorax by an Iron Bar.*—Dr. C. W. HOYLAND, Surgeon-Superintendent of the British Seamen's Hospital, Constantinople, relates the following remarkable case. Macknesky Leon, aged 25, a Pole, was employed in the hold of the Liverpool steamship *Sicilian*, discharging bar iron; and while he was in a stooping position preparing to sling a bundle for hoisting on deck, a bar from the one preceding slipped from the slings, and, descending end on, pinned him to the flooring of the hold, penetrating the wood to the extent of three inches, and requiring the united efforts of three men to extract it. The bar was of angular iron, an inch and a half square, and about fifteen feet long. The wounds were dressed by the captain, who simply applied pledgets of lint, steeped in compound tincture of benzoin, to the sites of injury anteriorly and posteriorly, and a roller round the chest. It was reported that considerable hemorrhage took place at the time. On reception at the hospital about an hour after the accident, Mr. Hoyland found the patient much

depressed; he had a feeble, quick pulse, and some dyspnœa; no cough. The dressings were not disturbed. Depression gradually subsided, and the reaction was moderate, no inflammatory or other unpleasant symptoms following. The patient was kept in a large ward, with the windows open night and day; and cold applications of a strong infusion of matico, in which a little chlorate of potash was dissolved, were employed. He did not micturate for the first twenty-four hours, and the bladder appeared quite empty. The bowels did not act until the fourth day, although castor oil and injections were administered freely. On the fourth day the bowels were evacuated freely once, and the kidneys acted regularly. On the fifth day, in the presence of Mr. J. Murphy, surgeon of Her Majesty's ship *Gannet*, Mr. Hoyland removed the dressings, found the wounds discharging freely and granulating kindly. The same treatment was continued—viz., pledgets saturated as above. The iron had entered posteriorly between the ninth and tenth rib, on the left side, a little before the angle, traversing the thorax in an upward and slightly outward direction, and coming out anteriorly between the fifth and sixth ribs about an inch below, and slightly outwards of the nipple. There was only slight constitutional disturbance for the first few days, with slight cough, but no dyspnœa. This yielded to the antiphlogistic regimen and saline draughts, the bowels throughout being gently relaxed. He was discharged quite well on the 8th of September.—*British Med. Journal*, Dec. 13, 1862.

—

39. *Osteo-aneurism.*—Dr. E. D. Mapother reported to the Surgical Society of Ireland (January 23, 1863) the following example of this infrequent disease: The subject of it was a gentleman aged 28, who had a tumour upon his left leg, which he attributed to an injury about five years ago, when he accidentally struck the limb against a chair. He had tried blisters, ointments, and other means for its removal, without success. It had progressed at a much more rapid rate for the month before I saw him. It was situated on the inner surface of the left tibia, about its centre, and appeared like a node, save that it was larger and more prominent, projecting externally to the size of a large walnut, and, as we had afterwards reason to believe, dipping into the bone for an equal depth. The skin was tightly stretched over it, but was not at all discoloured. It had a slight degree of elasticity, but its most remarkable features were a well-marked thrill or frémissement, and a distinct expansive pulsation, which latter was demonstrated by placing a bit of paper on the tumour and looking at it *en profile*. The pulsating mass rose up suddenly from the bone, which was plane and healthy around it. A slight bruit was audible with the stethoscope. Pressure on the femoral or popliteal arteries did not remove these symptoms. It was occasionally painful and tender. His general health was admirable, and there was no sign of strumous, syphilitic, or cancerous cachexia. As I stated that some operative procedure was called for, the family wished for the advice of Dr. Hutton, to whose mature judgment the successful issue of the case is mainly due. We determined first to remove the skin by potassa fusa, and this was done readily and rapidly by first raising the cuticle with a blister. The thrill, pulsation, and bruit were now found more evident, and the bone was seen to form a thin cribriform shell, the periosteum still covering the small spots where it had been removed. The tumour did not give the sensation similar to that experienced in squeezing parchment or egg-shell, which Chelius considers very characteristic. Remembering the frequent occurrence of phlebitis when the veins of bone are divided, we were disinclined to remove the tumour by a gouge or other cutting instrument. I may here say incidentally that I have always regarded the ready absorption of pus, and occurrence of phlebitis consequent upon injury of bone, as due to the peculiar anatomical arrangement of its veins. As described many years ago by Dr. Benson in the article "Bone," in *Todd's Cyclopædia*, these veins pass through osseous canals, to the sides of which they closely adhere, so that they cannot close on their contents. Nor can they readily become occluded by lymph, which we know is Nature's expedient for preventing the dispersion of emboli or pus-clots. Their ready power of absorption was demonstrated by Cruveilhier's well-known experiment: he injected mer-

cury into the medullary cavity of the tibia of a dog, and found it almost immediately after deposited in the liver. The fact that pressure on the femoral artery did not stop the pulsation, convinced us of the inutility of pressure in this case, although so successful in aneurism affecting the larger trunks. Still less were we willing that the patient should lose his limb, although amputation has been the result of nearly every reported case.

We resolved to try the effect of actual cautery, and having chloroformized the patient, we pressed an iron button of the diameter of a shilling, heated to a white heat, deep into the tumour; a good deal of hemorrhage followed, but was repressed by muriated tincture of iron. In seven days the slough separated in small gritty pieces, and there was disclosed a mass of hard pulsating substance of the shape of large granulations, but of a pale colour. Seeing that it was necessary to reapply the cautery, we did it this time with a sharp conical iron, which was thrust five times into the tumour, and thus it burnt its way for an inch and a half from the surface of the tibia. In ten days a thick and somewhat conical slough came away, leaving a cavity filled with small healthy granulations at its sides, but with a small spot of rough bone at the bottom. This gradually became covered in, and the ulcer assumed the healthiest character. The patient has not suffered in any perceptible degree from the confinement to which he was necessarily subjected. I have warned him against any sudden or violent exertion of a nature which would tend to injure the arterial system, for there is no doubt that in some individuals a proneness to aneurismal disease exists, almost in the manner of a diathesis.

I shall conclude this brief sketch with a few reflections on the pathology and treatment of this interesting affection. In the first place, I trust that my case proves that osteo-aneurism can exist without any malignant character—a fact which has been all but denied by Mr. Holmes in his recently published *System of Surgery*. The skin and areolar tissue are very frequently the seat of tumours composed of dilated arteries and capillaries, and there seems no valid reason why so vascular a structure as bone should not occasionally suffer a similar condition. These aneurisms of anastomosis in the skin are certainly much more frequently congenital, but there are many authentic accounts of their being developed at various ages after birth. The tumour I have described closely resembled aneurism by anastomosis in the thrill and bruit which it possessed, and in the abundance of the hemorrhage which occurred from it when partly destroyed by the heated iron. In many reported cases where the part was removed by amputation, the tumour, when injected and carefully examined, was found to consist of dilated, tortuous, and freely communicating vessels, identical with those which form the bulk of the cutaneous affection, and forming a mass extremely like the uterine surface of the placenta. I had no opportunity of making such observations, but the features of the disease convinced me of its close analogy with aneurism by anastomosis. As regards the relative frequency of the disease in various bones and in the sexes, Crisp informs us that out of 25 cases, 13 were situated in the tibia, and 19 occurred in men. The same author affords statistical information which may guide us in forming a prognosis, for out of these 25 cases, 19 were fatal either after operations, or where the case was not at all interfered with. Ligature has proved remarkably unsuccessful, and nearly all surgical writers agree that amputation alone gives the patient a chance of recovery; if, however, no recurrence of the disease takes place in the instance I have detailed, I think it shows that reliance can be placed in the actual cautery to remove the slighter and more circumscribed examples of osteo-aneurism in its earlier stages. It will gratify me extremly to hear the comments of any member on the subject.

Dr. Mapother added that the first operation was performed two months ago, and the second ten days after that. The tumour was now quite removed, and the ulcers were healed completely.—*Dublin Free Press*, Feb. 4, 1863.

[It is to be hoped that Dr. Mapother will watch the future progress of this interesting case, and communicate it to the profession. The cure is too recent to pronounce it permanent, or to lead to the conviction of the innocent nature of the disease.]

40. *Amputation at the Hip-Joint for Malignant Disease of the Thigh.*—Mr. James Spence records (*Edinburgh Medical Journal*, January, 1863) a case of malignant disease occupying the middle and lower part of the right thigh of a girl 15 years of age, in which he amputated at the hip-joint. The operation was successful so far as for the present at least to snatch the patient from the brink of the grave and restore her to health, but it is yet premature to say that the disease may not hereafter return in some other organ.

Mr. S. makes the following observations on amputation for malignant disease, which are worthy of consideration:—

"The mortality which attends amputation at the hip-joint, and which has even led some to question the justifiableness of the operation, is undoubtedly very great; and hence considerable interest attaches to every successful case, the circumstances under which it was performed, and all the conditions which may have a bearing upon the general question of the operation in similar cases. According to the latest statistics of the operation, given in the recent edition of *Cooper's Surgical Dictionary*, we find that, in a total of 139 cases, there were 91 fatal results, or a mortality of 65.46. Moreover, when we know that in several of the successful cases the operation was performed on limbs which had previously undergone partial amputation, and where consequently the shock and disturbance of the system caused by the sudden removal of the whole lower extremity was wanting, or at least greatly diminished, it seems evident that the risks of this formidable operation are such as must limit its performance to cases of extreme necessity.

"In cases of certain severe injuries the surgeon may be forced to perform it as the only chance of saving, or at least prolonging life, and alleviating suffering, by removing the shattered limb. In cases of disease, the question of operation comes before us under a somewhat different aspect, for the amputation may prove more speedily fatal than the disease would have done if left to its own course. Hence, to warrant its performance, the disease must be of a kind that admits no other remedy, and at a stage when the whole of the appreciable disease can be removed, and with a reasonable hope of prolonging life. In the case which forms the subject of the present remarks we have a good example of the conditions which warrant us in having recourse to amputation at the hip-joint. The girl was suffering from intense pain, her appetite was almost gone, and her strength exhausted by the pain and want of sleep; her pulse was quick and irritable, whilst the tumour was increasing rapidly. The urgency of these symptoms showed the necessity of operative interference, if any attempt was to be made to relieve her sufferings and to prolong life, even for a short time; whilst the absence of glandular enlargement, either in the groin or elsewhere, gave hopes that the lymphatic system was as yet unaffected, and that, with youth on her side, there was a reasonable hope of success attending the operation. On the other hand, if it were delayed, or not performed, a speedy and painful death was certain.

"The disease was limited as far as malignant disease can be said to be limited in the living body, where the circulation of the fluids prevents positive limitation to any special part. But, practically, surgeons are agreed, from experience, that malignant disease, especially its medullary form, when situated in an anatomically limited organ—as the testicle, for example, where it is invested by a dense resisting capsule—admits of more thorough removal than when it occurs amongst muscles or other soft textures, whose structure it speedily involves in the same diseased action, without any definition or limitation. In the present case the disease had evidently commenced in the interior of, and was still apparently confined to, the shaft of the femur. Thus walled in, as it were, by the dense fibrous shell of the bone, or by the strong fibrous periosteum investing the shaft on every side, and closed in at either extremity of the bone by the articular cartilage of incrustation, the disease presented the utmost possible degree of anatomical limitation, and so presented the best possible chance of complete removal. But to profit fully by this limitation of the disease it was evidently necessary to amputate in the contiguity, and not through the continuity of the affected bone—a rule which I consider of paramount importance in such cases. Hence the reason why I considered amputation through the trochanters

inadmissible, although the bone seemed unaffected; for, in many cases where no perceptible alteration in the form of the bone can be detected, the disease will be found to be infiltrated into the cancellated texture even of the neck and head of the bone; and there need be the less hesitation on this point, as I believe that, in cases of malignant tumours of the femur, amputation through the trochanters is attended with quite as much danger to life as amputation at the hip-joint."

There are two in Mr. S.'s case to which he calls attention, and which are of interest. The *first* of these is "the mode adopted to restrain hemorrhage during the operation. This was effected by compressing the abdominal aorta by the tourniquet, or compressor, proposed by Professor Lister, of Glasgow, and which he kindly lent me for the occasion. I had previously ascertained that, from the thin condition of the patient, I could readily arrest the circulation by manual pressure on the lower part of the aorta, but an equal, unyielding mechanical compression is safer, and hence I preferred it; but, as it was a trial, I guarded against all risk from the anterior vessels by intrusting the care of the femoral artery to my colleague, Dr. Watson. The result, however, showed the efficiency of the instrument, as it completely commanded the usually uncontrollable flow of blood from the branches of the internal iliac distributed to the posterior flap; and avoidance of loss of blood in an exhausted patient must have a most important bearing on the success of the case. How far such compression could be trusted to entirely in a strong man, or in the case of a very fat person, with a large abdomen, or whether it might, if incautiously applied, lead to injury to the viscera in certain conditions, further experience can only reveal; but certainly in this, and two cases in which it was used by Professor Syme, it proved perfectly effectual.

"The other point of the operation I would refer to was the necessity which arose for applying a ligature to the femoral vein. The hemorrhage from this vein continued after all pressure had been removed from the groin and abdomen, and as temporary pressure of its orifice and other means failed to arrest it, and as it returned whenever the pressure was removed, I found it absolutely necessary to tie it. I have frequently seen troublesome bleeding from the femoral vein in amputation of the thigh, but in general it stops when compression is made by applying the flap against its surface, when all pressure above is removed, and the stump elevated, but here these means prove ineffectual, or perhaps, I should rather say, the weak condition of the patient rendered it necessary at once to check all loss of blood. I confess that my prejudices against tying veins are very strong, and this step in the operation made me uneasy as to its effects; but as the history of the progress of the case shows, my fears were groundless, not a single bad symptom having followed ligature of the vein."

—

41. *The Urine in Diseases of the Bones.*—In the course of a series of papers on inflammation of the bones, Dr. LORINSER of Vienna gives the results of some observations made by Professor Kletzinsky on the chemistry of the urine and pus in cases of inflammation of bone.

In very acute cases of inflammation of bone the urine presents marked peculiarities. There is not only, as ordinarily occurs in inflammations, a diminution of the chlorides, with a copious or increased excretion of urea, uric acid, extractive matter, and alkaline sulphates and phosphates, but the phosphate of lime is also greatly increased in quantity, and is not unfrequently found in the urinary sediments in the form of bone-earth. The chlorides diminish from their normal proportion (about 10 per 1000) often to as low as 1 per 1000; while the earthy phosphates increase from 3 to 10 parts in 1000, or even higher. In the further progress of acute ostitis, the chlorides again gradually increase; the urea and the urates and sulphates also diminish; but the proportion of the phosphates varies according as the disease is unattended with suppuration or any remarkable amount of osteophytic growth, or with necrosis and the formation of new bone. In cases of the first category—"dry inflammation of bone," as it is sometimes called—the phosphates, and especially the phosphate of lime, remain at a high figure until the inflammation ceases; and the latter often appear excreted in the form of amorphous bone-earth. If necrosis, with suppu-

ration and subsequent formation of new bone set in, there is a diminution in the quantity of the phosphates, and especially the phosphate of lime, which is employed in the process of bone-growth.

The manifestations of the phosphates in the urine correspond perfectly with the chemical characters of the diseased bone.

In the inflamed bone itself (without reference to new osseous growths) there is always a very marked diminution of the bone-earth, which, during the exudation-stage of the inflammation, is rapidly absorbed and carried away by the urine. The proportion of water in the bone is at the same time increased, and the animal matter is diminished. The normal proportion of carbonates to phosphates in the ashes of bone is destroyed, while that of magnesia to lime remains undisturbed. Albumen and chloride of sodium, which are scarcely to be found in healthy bones, are generally greatly increased in quantity; and tyrosin can also for the most part be detected.

As soon as new bone begins to be deposited, the excess of phosphate of lime in the system is used in its formation; and consequently there is a diminution in the excretion of the phosphates, especially the earthy phosphates, by the urine. The bony deposit does not at first show the normal condition of bone; but the "glutin," and especially the bone-earths, are far more abundant than in the inflamed and necrosed bone, and the excess of water is diminished; but the newly formed bone contains decidedly less fat. The following analysis, taken from a patient aged 29, who had necrosis after acute inflammation of the tibia, shows the difference in the composition:—

	Necrosed bone.	Newly formed bone.
Water	71.7	32.8
Fat	2.4	0.8
"Glutin"	12.3	26.4
Bone-earth	12.4	40.0
Other organic matters	1.2	A trace.
	100.0	100.0

In both instances the proportions differ from those of normal bone; in which the amount of water is ordinarily 10, of "glutin" 30, and bone-earth 60 per cent.

In chronic inflammation of bone, the changes in the urine presented in acute inflammation are not perceived; there does not appear to be a notable diminution of the chlorides, unless a sudden attack of acute inflammation set in. But the phosphates are increased in quantity in the urine as in acute ostitis, especially the earthy phosphates. If at a later stage of the chronic disease an energetic osteophytic development take place, or especially if the weakened osseous tissue be again thickened, the quantity of earthy phosphates in the urine is diminished; but if none of this reparative reaction occur, the quantity of these salts goes on increasing. Hence, in all cases of chronic, especially lingering, inflammation of bones, and even in spinal curvature, knock-knee, &c., the examination of the urine affords most important indications as to the stage of the disease—a point often difficult to be determined. The same observation is applicable to the healing of fractures.

In long standing caries the earthy phosphates appear abundantly in the urine, mostly in company with some albumen, uroerythrin, and carbonate of ammonia (produced by decomposition of urea), and even tyrosin. In the stage of greatest exhaustion, the phosphates, with the urea and uric acid are diminished, and the albumen is then generally accompanied with hæmatin.

In the so-called "phosphorus necrosis" (disease of lucifer-match makers), phosphites and hypophosphites appear in the urine; showing that the disease is certainly not local, but must be connected with important changes in the blood itself.

A rather considerable excretion of phosphates, especially alkaline phosphates, takes place in suppuration. The phosphates, especially at the commencement of the suppuration, appear very abundant in the pus discharged from abscesses that have been opened; and they retain their high figure through the continuance or increase of the destruction of the bone up to the time of death. Even

during extreme exhaustion, when the amount of phosphate in the urine is diminished, that in the pus is increased. The proportion of alkaline to earthy phosphates, which in normal pus is 7 to 1, often varies greatly with the stage and course of the disease, and the state of the patient's general health. In phosphorus necrosis, the alkaline phosphates, in the pus first discharged, are increased more than threefold; the pus also generally contains tyrosin as well as phosphites and hypophosphites.

In chronic, as in acute, inflammation of bones, there is an increase of the water and a diminution of the animal and mineral matters. In cases of long standing caries, with extreme exhaustion, the proportion is sometimes changed; while the mineral matters continue diminished, the animal matter is increased, so that there is an apparent diminution in the proportion of water, which is, nevertheless, still great. Albumen, which is almost absent in healthy bone, appears in abundance in chronic inflammation, especially in caries of long standing. The proportion of carbonates to phosphates, which in normal bone is as 1 to 7.25, varies in chronic inflammation of bone from 1 in 4 to 1 in 12. In phosphorus necrosis there is not so great a deviation from the proper proportions of water, animal matter, and mineral matter, as in other forms of caries and necrosis. This, however, depends on whether the nutrition of the bone has or has not been suddenly interrupted by the phosphorus necrosis. In the former case the composition of the bone will naturally be less altered than in the latter. —*British Medical Journal*, Dec. 6, 1862, from *Wiener Med. Wochenschr.*, Oct. 4, 1862.

—

42. *Sac of a Spina Bifida successfully removed by Operation.*—Dr. WILSON, of Clay-cross, sent to the Pathological Society of London (Jan. 6, 1863) this specimen. The child from whom the sac was taken was a fine, and, in other respects, well-formed boy, the first child of young parents. The tumour was pyriform, the size and shape of a ten-ounce necked cupping glass. It hung from the upper dorsal region of the spine, was flaccid, and only partly filled with fluid; the integuments over it were very thin, indeed, translucent, and over the most prominent part of the swelling were two small excoriations. At the base of the tumour could be felt a deficiency in the bones beneath, corresponding with the third and fourth dorsal vertebræ. There was no paralysis or other symptom of deficiency of nervous power. From the time of birth Dr. Wilson applied pressure to the base of the tumour, so as to isolate it from the spinal canal as far as possible. To relieve the tension of the integuments which had become extreme, on the twentieth day after birth it was punctured, and eight ounces of fluid were drawn off. During the next twelve days it was tapped four times, each time about two ounces of fluid being drawn off. A steel clamp was applied to the base for five days before removal, and, on the thirty-third day, the sac and integuments were shaved off at the base of the tumour, which was grasped by a pair of circumcision forceps. The cut edges of the spinal membrane were lightly touched with a red-hot needle, sutures were applied to the wound, and pressure to the base of the tumour. Twenty days after the operation the wound had entirely healed. Two months after the operation the chink in the vertebræ was found to be closed by a solid mass which projected somewhat beyond the neighbouring spines, and appeared to be formed of bone. The sac, as Dr. Wilson says, consists of thin integuments covering the dura mater, to which it is unadherent; this is lined internally by a layer of epithelium resting on a basement membrane, coated on its free surface by a more or less organized exudation of lymph. The dura mater is quite an independent coat in this tumour, and is in no way connected with the integuments: the sac contains no nerves. The fluid in this case was situated in the sac of the arachnoid, and not, as is usually the case, in the sub-archanoid space. The tumour (Mr. Smith said) had been examined by Dr. Cornelius Black, of Chesterfield, by Mr. Savory, and by himself, and all coincided with Dr. Wilson in his account of its structure and connections with the spinal membranes.

Mr. Hutchinson remarked that this case had been very correctly described as the first successful one of its kind in English practice. It was not, however, by very far the first in which a similar plan had been tried. All the others had

ended fatally, and he (Mr. Hutchinson) found in this fact a very strong argument against the measure. We must not be misled, by the successful result of a single case, into adopting a practice which, in the long run, would destroy many lives. He gave a strong opinion against all operative interference with spina bifida, stating that he had witnessed many operations of very various kinds for the cure of this deformity, but every one of them had been followed by the same result. In several of these there was every probability that, had the operation not been performed, the patient might have grown up. He had seen several adult patients the subjects of spina bifida which had been wisely let alone in infancy.—*Med. Times and Gaz.*, Jan. 31, 1863.

43. *Ovariotomy.*—Mr. Yeo read before the Junior Medical Society a paper on this operation. He commenced by observing that the subject was so mature, and surrounded by so many well-authenticated facts, that it might fairly be discussed by this Society. In doing so it was desirable to be influenced not so much by the weight of authority, but rather by a calm review of the facts of the case, and the reasonable inferences to be deduced therefrom. The history of the operation was then traced, from its origin in America, in 1809, and its inauspicious introduction into Great Britain by Mr. Lizars in 1823, to its re-introduction by Dr. Clay in 1842, and its subsequent steady progress. He then enumerated the various other means that had been suggested for dealing with ovarian tumours, and alluded to their generally unsatisfactory results; and after sketching the usual course of a case of ovarian disease, if left to itself, or merely submitted to palliative treatment, he passed on to the consideration of the operation of ovariotomy itself, pointed out the cases in which it appeared justifiable, and thought it should be restricted to those cases where the disease manifested a progressively fatal tendency, or where the patient's life was rendered so miserable that an operation was eagerly sought after. While alluding to the modes of performing the operation and the proper after-treatment, the author mentioned the particulars of two recent cases, one in which Mr. Fergusson, and the other in which Mr. Bryant, had operated. He then stated the common objections to the operation, and thought they would be removed by the results of an extended experience, a careful selection of cases, and a careful observation in operation of all the details that the most experienced in these cases had suggested and found necessary; observing, in conclusion, that after, and in spite of, much opposition, ovariotomy might now be regarded as about to take its place amongst the greatest achievements of the progressive surgery of the nineteenth century.—*Lancet*, Dec. 27, 1862.

44. *Imperforate Anus; Successful Treatment by Perineal Incision.*—One of the operations for the remedy of artificial anus in children consists in making an incision in the perineum, detaching the rectum, and bringing it down and fixing it to the external wound, so as to make a new anus. An operation of this kind is reported by Dr. Friedberg, of Berlin, as having been performed by him with success. The patient was a male child. The medical man in attendance had incised the perineum and opened the rectum, with relief for a time; but defecation became gradually more difficult, and ceased when the child was about nine weeks old. Dr. Friedberg was now called, and operated in the manner above described. The stools were passed daily for three months. At this time, constipation set in. The passage was found to be perfectly free; and the constipation was relieved by drawing away an accumulation of scybala about four inches above the anus. The newly formed anus had at this time all the appearance of the natural opening, and contracted on the finger.—*Ibid.*, from *Arch. für Path. Anat.*, and *L'Union Méd.*, 1 Avril, 1862.

45. *Vaginal Lithotomy.*—Dr. Aveling, of Sheffield, read a paper on this operation before the Obstetrical Society of London (Jan. 7, 1863). The author commenced by reciting the particulars of thirty-five cases in which this operation had been performed—twelve British, and twenty-two foreign. The author also gave another case, in which he divided the vesico-vaginal septum, and extracted a small rough stone. The wound was brought together with silver wire

sutures. Gilt beads were passed over the ends of these, and run down to the lips of the wound. These were kept in position by a perforated shot, also passed over the ends of the sutures, and tightened upon them by a pair of forceps. He proposes in future to use a coil, made by winding a piece of the suture wire round a pin, instead of the beads. The wound healed in a week, and the patient returned to her home in a fortnight.

Mr. Spencer Wells congratulated Dr. Aveling upon the successful result of his interesting case, and heartily concurred in the tribute he had paid to the services of Dr. Marion Sims. But he (Mr. Wells) had begun to doubt whether the success which had followed the operation for the cure of vesico-vaginal fistula of late years was so much due to the use of wire sutures as to the improvements which Dr. Sims had originated in the mode of bringing the fistula into view, accurately paring the edges, and bringing them into perfect apposition. Provided the edges of a fistula were thoroughly pared, and kept in close apposition, it was probably of little importance how this was done. A year ago he (Mr. Wells) was as strongly in favour of metallic sutures as anybody; but latterly a wider experience had taught him that it is only after five or six days that wires show any advantage over silk, and before that time the sutures ought to be removed. Then silk offers the great advantages over wire of being more easily applied, of not requiring so large a needle to pass it, of the ends being much less irritating, and of being more easily removed. After many comparative trials on different parts of the same wound with wires of silver, iron, lead, platinum, and aluminium, and with fine catgut, horsehair, telegraph wire, India-rubber thread, and the fine strong silk known as "Chinese twist," he had become convinced that wires offered no advantage over silk, while silk offered many advantages over every other material used for sutures. In a recent case he had closed a vesico-vaginal fistula by five silk sutures, and perfect union resulted, although no catheter was used. The supposed necessity for the use of the catheter after closing vaginal fistulæ, was another error which time was correcting. The urine is by no means so irritating a fluid as some believe. The lower orders use it as a lotion to the eyes and to sore legs; and it certainly cannot differ much from the dilute saline solutions constantly prescribed as astringents or stimulants. The use of the catheter is the most troublesome part of the after treatment, and often most distressing to the patient. One of his patients really could not bear it, yet she did perfectly well; and lately he had not used it at all, union taking place quite as well as when it was used, and the patient being much more comfortable. With regard to stone in the bladder during labour being a cause of vesico-vaginal fistula, he had once removed in the Samaritan Hospital a large stone through a fistula before closing it; but it was very questionable whether it could often be necessary to remove a calculus through the vagina when no fistula existed, or to run the risk of making a fistula to remove a stone. Lithotrity was very easily performed in women; and large fragments of stone passed readily through the short female urethra, so that no form of lithotomy could often be called for. Simple dilatation of the urethra was not likely to answer in any case not suitable for lithotrity, and its effects are very uncertain: a large stone might be removed and no incontinence follow; but incontinence might follow removal of a very small calculus. The usual aid to dilatation by incising the urethra was still worse. A surgeon of very large experience had told him that he had done it for two adults and seven children, and "they were all dribblers." Where, from some exceptional condition of bladder or stone, lithotrity was inappropriate, vaginal lithotomy might, therefore, become a valuable operation; but experience was still wanting to show that it was better than, or as good as, the lateral operation so successfully practised by Dr. Buchanan, of Glasgow. The subject was a comparatively new one, and Dr. Aveling deserved the thanks of the profession for the light he had thrown upon it.—*Med. Times and Gaz.*, Feb. 7, 1863.

MIDWIFERY.

46. *Tartrate of Antimony as an Oxytoxic.*—Dr. Parker communicated to the Obstetrical Society of Edinburgh, the following notes: Tartarized antimony has long been, as you are aware, in use in obstetric practice. Lecturers and authors have informed us, and still continue to do so, that the result of its administration is to advance the labour—1*st.* By overcoming muscular rigidity; 2*d.* By causing a free flow of mucus, and thus lubricating the vaginal mucous membrane. While not confining its use to primiparæ, they speak of it as more especially serviceable in this class of cases.

With this much theoretic knowledge of its action I, sixteen years since, commenced testing it practically, and it was not long before I observed that, in addition to the actions previously attributed to it, a very important end was effected in a large majority of cases by its administration. I refer to its influence on the uterine contractions; in other words, to this agent as a powerful stimulant to the involuntary muscular action of that organ. While relaxing the circular or sphincter fibres of the os uteri, I observed that it produced more powerful propulsive efforts, by stimulating the longitudinal and other muscular fibres concerned in effecting delivery.

As early as the years 1846 or 1847 I called the attention of some of my medical friends to the facts, and requested them to keep a record of cases in which this auxiliary agent was prescribed.

It is unnecessary that I should occupy the time of the Society by detailing minutely reports from my case-book. A brief summary of what I have observed in reference to this matter in a very large number of instances, and the deductions drawn therefrom will suffice, and equally subserve the end I have in view.

1*st.* Tartarized antimony relaxes both voluntary and involuntary muscular fibre concerned in resisting and retarding labour; in other words, it overcomes the rigidity of the os uteri and perineal muscles.

2*d.* By increasing the vaginal mucous flow, and lubricating that surface, it essentially aids the progress of parturition.

3*d.* *It stimulates to increased contractile action the oblique, longitudinal, and other muscular fibres concerned in expelling the child.* It may be said that this increased contractile action is only apparent, and that the advance of the labour is due to the decreased rigidity and resistance of the os and more external parts, in consequence of the tartarized antimony having produced the results stated in the two preceding propositions. This objection is at once removed and proved to be incorrect by the results following its administration, in cases not primiparous, where there is "inertia uteri" with the os fully dilated, the vagina patent, and the perineum not rigid. In just such labours I have been in the habit of prescribing the tartarized antimony instead of ergot, with the most marked results.

4*th.* Unlike ergot of rye it does not produce continuous contractions, but, in the majority of cases, enhances the power and force of the regular pains, and admits an interval of ease.

5*th.* It continues to some extent to exert its contractile influence after the expulsion of the child, and hence reduces the risk of hemorrhage. Of course this result will be modified by the interval that has elapsed between the administration of the antimony and the delivery.

6*th.* Unlike ergot, it does not interfere with the extraction of the placenta, by producing irregular uterine contractions. The superior and propelling portion of the organ, it is true, is generally more firmly contracted than natural after delivery; but the sphincter (the os) is mobile and yielding, and but little difficulty (no morbid condition of the parts being present) is experienced in this particular; abdominal pressure, and traction in the proper axis will almost invariably effect the end without injury to the cord.

7*th.* While perhaps more applicable to primiparæ, tartarized antimony may

be administered with like results in subsequent labours, and that at any age or stage of labour, without risk of injury to the uterine texture.

8th. Administered as I shall presently state, its emetic effects are not troublesome; not more so when they do occur than from ergot, when this latter, as it very frequently does, produces vomiting. This effect of the antimony, when present, will promptly yield to cold oatmeal, coffee, a mustard cataplasm over the stomach, or a dose or two of the trisnitrate of bismuth.

9th. I have never known depression of the vital powers, or more than temporary inconvenience, to follow its use when administered in the mode hereinafter mentioned; although I can readily conceive that there are cases in which it would not be admissible. In the selection of appropriate cases, and discriminating in this matter, medical men must have recourse to, and be guided by, their experience and general principles.

10th. Tartarized antimony, by facilitating and shortening the process of parturition, as above mentioned, without risk to the uterine apparatus or general system, will, we may confidently expect, by conserving the vital powers and reducing the nervous shock, show, on more extensive trial, favourable statistical results in the mortality attending obstetric practice.

The foregoing observations and conclusions have not been arrived at hurriedly, and they are not deductions drawn from a limited number of cases, or, as you are aware, from a limited field of observation. While they will be found correct in a large majority of cases, I am free to admit that tartar emetic will not in all cases produce the same results. And, indeed, of what therapeutic agent can we write in other language? Once only (six or seven years since) I have met with a single recorded remark that would lead me to infer that the *contractile influence* to which I have referred has been noticed by others. I cannot now lay my hand on the periodical which contains it, but I recollect the writer states that, after injecting two grains (I think) of tartarized antimony into the rectum in a case of tedious labour, for the purpose of overcoming muscular rigidity, *the pains very shortly became stronger and more effectual, or words to that effect.*

The rationale of its action is undoubtedly to be referred to the influence tartarized antimony exerts on the sympathetic system of nerves. The uterus, like the stomach and intestinal canal, is composed of involuntary or unstriated muscular fibre, and is, like the other abdominal organs, largely dependent for nervous supply on the sympathetic system. Now, we all know as the action of antimony on these hollow abdominal muscles or canals: that, when administered in sufficient quantity, forcible contractions of the circular and longitudinal fibres composing them, and relaxation of the sphincters, take place; just what I have remarked and recorded as occurring in the uterus. Similarity of texture and nervous supply would then analogically point to that which experience and observation have taught me is in reality the case in reference to the action of this agent in the uterus in the act of parturition.

Ergot of rye, while acting primarily and with more energy on uterine muscular fibre, exerts at the same time a secondary or inferior influence on the stomach, often producing, as I have before remarked, troublesome vomiting.

Now, the deduction one would naturally draw from the above observations is, that all, or most of what are termed "specific emetics," would, through the agency of the sympathetic system, exert their contractile influence on the uterus, and *vice versa*, as just illustrated in the case of ergot—*i. e.*, therapeutic agents which cause uterine contractions will have a similar action on the stomach and intestinal canal. I have not administered ipecacuanha with the same object in view, but have very little doubt that if tried it will be found to produce like results. Its taste and bulk would, however, other things being equal, give a preference to its more convenient ally tartar emetic; while, on the other hand, its depressing effects would not be so marked in cases where a continuance of the medicine should be considered advisable. In this connection I may remark that it is suggestive, and at the same time corroborative of the views here stated, that nausea and actual vomiting, occurring naturally during labour, very generally advance, and often materially shorten the process, by increasing the contractile power of the uterus. I administer the tartarized an-

timony as follows: From one to two grains are dissolved in a wineglassful of water, and a dessertspoonful given every ten or fifteen minutes *ad nauseam;* and if the pains are not increased sufficiently, and there are no contra-indicating circumstances present, it is continued beyond this point. The rectal mode, to which reference has been made, has its advantages, and, at the same time, its inconveniences; but there are cases in which it should have the preference.

It only remains for me, in conclusion, to ask the members of this Society to give the subject their consideration, to note at the time the results attending its administration, and not to report their conclusions until they have given the matter a fair and somewhat extended trial.—*Edinburgh Med. Journ.*, Jan. 1863.

—

47. *Dropsy of the Ovum.*—Dr. McClintock read before the Dublin Obstetrical Society (Dec. 13, 1862) an interesting paper on this affection, illustrated by a number of cases.

"It must be confessed," he remarks, "we know very little of the pathology of this complaint, or of the special conditions which give rise to it. In very many of the cases which have fallen under my observation I have instituted careful examinations on these heads; yet, in but few examples was there any notable appearance of disease of the amniotic membrane. In these exceptional cases the amnion was partially opaque and thickened, but nothing more. That the disease does not depend on a dropsical diathesis of the woman herself is shown by the fact that these women are often free from dropsical effusions in any other part of the system; and also, that very many patients are affected with general dropsy at the time of delivery, in whom, nevertheless, there is no marked redundancy of the amniotic fluid." * * *

"A dropsical state of the amnion is a very common morbid condition of abortive ova; and I cannot help thinking, with the late Professor Andrew Retzius, of Christiania (who drew my attention to this fact when looking over the Museum of the Lying-in Hospital), that it is a very frequent cause of the early death and expulsion of the embryo.

"Of thirty-three cases of amniotic dropsy carefully noted by me, *one* ended in abortion at the fifth month, and *one* at the sixth month; *ten* resulted in the decidedly premature expulsion of the fœtus; and in the remainder the child seemed to have, at all events, reached the ninth month, though in some of them it most probably had not completed it.

"There seems good reason to believe that some of the cases of the disease called 'hydrometra,' or dropsy of the womb, were of the kind now under consideration—were, strictly speaking, a disease of the ovum, and not of the uterus; just as the so-called hydatids of the uterus is, in truth, a disease affecting only the involucra of the embryo. Many of the recorded cases of 'hydrometra' admit of a much more rational explanation of their history and phenomena, and one more consistent with the physiology of the uterus, on this supposition than on any other pathological view.

"This morbid excess of the liquor amnii, or, perhaps, the morbid action from which it results, seems to be very unfavourable to the well-being of the fœtus, as *nine* of the children were dead born, *five* of which were in a putrid condition; and *ten* of the live-born children died within a few hours after birth. It occurred more frequently with female than with male children, in the proportion of *twenty-five* of the former to *eight* of the latter. The great difference between these numbers is very remarkable, and would almost suggest the probability of there being something more than a mere accidental association of this disease with children of the female sex.

"The presenting part of the child was noted in *thirty-one* instances—and among these the head presented on *twenty* occasions, the pelvic extremity *nine* times, and the upper extremity *once*. We could not, from these numbers, safely infer that a redundancy of the liquor amnii favoured preternatural presentation, because there is another circumstance connected with these cases which would go far to account for it, namely, the great frequency among them of premature labour—of the *thirty-three* cases nearly one-half having terminated in the premature expulsion of the ovum.

"In the acute form of this disease it would perhaps be rather difficult to trace

the symptoms to their real cause, unless the dropsical condition of the amnion was discoverable by physical examination. The enlarged uterus may be confounded with plural pregnancy, or with ascites. Where there is much distension of the uterus a feeling of fluctuation will be communicated, with great distinctness, to the hand on percussing the abdomen, so that, in extreme cases, it would be impossible to arrive at a positive conclusion by this mode of examination. Internal examination will generally supply stronger evidence. The expanded state of the cervix, the extreme tension of the lower segment of uterus (or of the membranes, if the os be open), and the ease with which the child can be displaced, are all corroborative signs of the ovum being unusually distended with fluid. With reference to the last-mentioned sign, we must bear in mind that a dropsical ovum may coexist with immobility of a presenting fœtus.

"Some writers have stated that inaudibility of the fœtal heart's sounds, and of the placental murmur, are results of amniotic dropsy. But this observation can only be received in a very qualified manner. No doubt, in a considerable proportion of these cases the child *is* dead, and its heart, therefore, inaudible; in many of them the patient is still far removed from the end of pregnancy, and this in itself creates a difficulty to hearing the fœtal heart; but, in these and the remaining cases, we may generally succeed in detecting it, as I myself repeatedly have done, by persevering and diligent exploration.

"In a few instances I have heard the placental murmur distinctly, and with all the characters belonging to it. In these cases I discovered it accidentally. Not having sought for it in any of the cases, I cannot say whether it is more or less easy of detection than under ordinary circumstances. The entire superficies of the uterus is certainly very much increased, but in the same proportion is the placental area increased; and I have little doubt it is the interference arising therefrom to the placental circulation which causes so many of these fœtuses to be born in a dead or dying state. The first stage of labour is very commonly protracted in these cases from inertia, caused by the over-distension of the uterine fibres. Occasionally the cervix is completely effaced, and the mouth of the womb in a somewhat dilated state for days; but the uterus seems incapable of making any vigorous effort to expel its contents, or to rupture the membranes." * * *

"A question of deepest interest connected with this disease of the ovum is its influence on maternal mortality. Now, of the 33 cases here reported, four ended in the death of the mother. One was from rupture of the uterus (the child, in this instance, was hydrocephalic); another from puerperal fever, at the time epidemic; and the other two deaths were from debility and prostration. Each of these latter women had been confined of twins, and were in a broken-down state of health at the time of delivery. The above results will abundantly justify the observation, that a comparatively high rate of mortality may be expected amongst patients who are the subjects of dropsy of the ovum. One very influential reason for this may be found in the fact, that a large proportion of these women are in a more or less cachectic debilitated condition of body; in fact this state may be regarded as a strongly predisposing cause of the disease. Of the women who recovered, *three* had smart attacks of uterine inflammation after delivery. Altogether, then, it is plain that these patients, more than others, require to be closely watched during child-bed.

"I know of no treatment capable of arresting the secretion of the liquor amnii, or of causing its absorption where already secreted to an excessive amount. I have made trial of mercury, hydriodate of potash, diuretics, and other remedies, but could not perceive any good effect from their employment. Of course, when the distension of the uterus becomes enormous, puncture of the membranes must be performed, even though labour may yet seem distant, in the natural course of events. The patient may suffer much pain and discomfort, apparently connected with the disease in question; but where as yet the distension of the uterus is not so great as to justify a measure which we know will bring on labour. If it were possible to draw off only a portion of the fluid contents of the amnion, perhaps labour would not immediately follow, and doubtless great relief would accrue to the patient, who could thus be carried forward in her pregnancy." * * *

"The effect of this super-excess of liquor amnii upon the process of labour is generally, indeed I may say always, to retard it. The pains are constant, but not severe—not amounting to the degree of a regular labour pain; but yet they are most teazing to the patient. Very many hours, or even days, as we have seen, may be consumed in this way, before the os uteri will have reached the size of a penny. Under circumstances such as these, and where the accession of labour has evidently taken place, there may be no hesitation about letting off the water, with such precautions as the position of the fœtus may call for." * *

Dr. McC. thinks that the facts he has adduced enlighten on the following important points:—

"1. Dropsy of the ovum certainly does *not* depend on any dropsical diathesis of the patient herself. This fact, I think, is clearly established.

"2. There is no doubt, also, that it may occur quite independently of any dropsical condition of the fœtus, such a concurrence being but very rarely met with; and hence being, we may presume, purely accidental.

"3. It is not constantly associated with any appreciable morbid condition of the membranes or placenta; at least in some exceptional cases only did they present any deviation from their ordinary appearance.

"4. The cause of the dropsy would seem to be a purely local one. This is inferable from the frequently observed fact that in pleural pregnancies, where the disease was present, it was confined, in every instance, to one ovum only.

"5. My experience of this disease does not lead me to think that it has any connection with syphilis. In only one of all the cases on which these observations are founded was there any just ground for supposing the woman to be infected with syphilitic poison. In this exceptional case, father, mother, and child, all presented unequivocal venereal symptoms.

"With regard to the *functions* of the amnion, we meet with three classes of facts which help to illustrate them:—

"1. Cases of plural births occasionally are met with in which one of the fœtuses having been blighted, the fluid contents of its enveloping amnion have disappeared. This I would attribute to its absorption by the membrane itself.

"2. Again, we meet with cases in which the liquor amnii presents a very altered appearance—all its sensible characters being changed, and, instead of being transparent, thin, and inodorous, it is thick, turbid, and fetid. This is an instance of morbid or perverted secretion.

"3. Lastly, we have seen that the quantity of the secretion may be enormously increased.

"These facts all concur in strengthening the analogy between the amnion and serous membranes, by showing that it can, under certain circumstances, *increase*, *absorb*, or *alter* its proper secretion.

"All this does not carry us far, however, towards explaining how the disease in question is produced. But I believe we must rest content with this limited amount of knowledge till physiologists make us better acquainted with the vital constitution of the amnion and other temporary organs concerned in the nutrition and development of the fœtus."

—

48. *Unusual Density of the Amnion.*—Dr. Sawyer read before the Obstetrical Society of Dublin (Jan. 10, 1863) a paper on this subject.

On the 8th of June, 1861, he was hurriedly sent for to see a woman at the hospital whose "womb was turned inside out." On going to the labour-couch he found a nurse of considerable experience in a state of trepidation, pressing a napkin against the vulva. On examination he found a dark mass, about the size and shape of a small melon, protruding. On pressing the tumour the fluctuation relieved his mind. He found the womb of the usual size, and the amnion unusually dense and opaque, the rent through which the child passed being unusually small. In the next case he had had forty-eight hours' suspension of labour from density of the amnion. The Registrar requested him to visit Mary M——, and stated that as all pain had ceased for the two last days, he had the forceps with him, a number of pupils being on the look-out for an operation. On reaching the house he (Dr. Sawyer) found the place crowded with people, one of whom, recognizing him, cried out, "Oh, here's th' ould docther; run for the priest,

Biddy," an expression of her confidence which he duly appreciated (laughter). The woman's health had been good. It was her fourth child. Labour pains set in on Thursday night, and continued until the following Friday evening, when they gradually ceased. The midwife thought the waters had broken, but as the woman had incontinence of urine for some weeks, she could not be certain. The great size of the uterus convinced him that the membranes were whole. He found the os greatly dilated, and concluded that the delay was caused by over-secretion and the unusual density of the membranes. He gave her half a drachm of ergot in a tumbler of punch, and in ten minutes the bag became prominent, but he could not rupture it, either with his finger or tooth-pick, and was obliged to resort to the bistoury, when the waters rushed out, and labour was complete. His third case was one that occurred early in December. In the first confinement of the patient he had had the privilege of Dr. Churchill's assistance; and in her second confinement, in which there was a remarkable case of secondary hemorrhage, he had the advantage of Dr. Kidd's assistance. When called in on the last occasion, the second stage was completed. Having in her first confinement experienced considerable difficulty in suppressing hemorrhage, he took more than usual care. He put on the binder, and placed a dry napkin over the vulva. He then left the room for fifteen minutes, and on returning, the nurse showed him the napkin quite dry. Struck, however, with the pallid hue of the patient, he took off the binder and passed his hand up the vagina, when he found a soft tumour protruding through the partially closed cervix. While making the examination, there was a most alarming rush of blood, followed by contraction of all portions of the uterus, compelling him to extract the uterus.—*Dublin Med. Press*, Jan. 21, 1863.

—

49. *Dislocation of the Ensiform Cartilage during Pregnancy.*—Dr. ROBERT SIM relates (*Edinburgh Medical Journal*, February, 1863), the following unique case of this accident:—

"The lady in whose case the eversion took place is rather under middle height, of a symmetrical form, and in the prime of life.

"About the end of the sixth month of her recent pregnancy, which was her fifth, she began to complain of great pain in the right side; but, as Dr. Mackay observes, it would be difficult to ascribe this pain to the eversion of the ensiform cartilage. There was pain at the place where it was turned over, but there was also great pain lower down, in the right hypochondriac region, the cause of which I must leave to you to explain, as I know of no satisfactory reason given for the existence of these very violent pains, sometimes so distressing, during the last months of pregnancy.

"The patient was delivered of twins in the month of October last, and my attention was drawn by her to a 'lump' under the right mamma, a few days after the confinement. I must tell you that this lady lives in constant dread of cancer of the breast, and that, when she drew my attention to the swelling, she evidently supposed it to be a scirrhous tumour. For two or three days I was afraid that her fears were too justly entertained; but, after observing the tumour for a few days longer, I was gratified to find that it was gradually diminishing in its circumference, and that the hard central part was also changing its form and position. In short, I soon discovered that the hard central part of the swelling, which remained after the disappearance of the surrounding tumefaction, was simply the ensiform cartilage, which had been gradually everted, pressed upwards, and turned over to the right side by the encroachment of the gravid uterus. On the uterine pressure being removed, the cartilage gradually rose from its abnormal position. At first I could hardly insert my forefinger between it and the cartilages of the ribs on which it lay. After some time it was at right angles to the sternum, and thenceforth its progress to its own place was more rapid. At the end of the sixth week from parturition, the cartilage had resumed its proper position.

"There was nothing unusual in the labour. Its duration was only about three hours. The presentations were—first feet, next head. The liquor amnii was not unusually abundant, nor was there anything remarkable about the size

of the placentæ. The twins, together, weighed twelve and a half pounds avoirdupois. The former births were all single.

"The length of the sternum is seven inches, that of the ensiform cartilage rather more than two. The distance from the sternum to the pubis I have not ascertained, nor other abdominal measurements."

—

50. *Pessary retained Thirteen Years.*—Dr. Kidd exhibited to the Obstetrical Society of Dublin (Jan. 10, 1863) a pessary which he had removed from the vagina of a woman on the previous day. She stated that he had himself introduced it for her thirteen years previously, and that she allowed it to remain with the greatest comfort to herself until within the last fortnight, when she began to experience a pain in the back, while some discharge took place from the vagina. The string had broken soon after it was put in, so that she was not able to remove it. The pessary was composition—a mass of tow covered over with India-rubber. He effected its removal by introducing one of the blades of Dr. Churchill's forceps, which he got above the mass, extracting it with the greatest difficulty. In another case he removed a pessary after a year, and on that occasion he had recourse to both blades of Dr. Churchill's forceps. The pessary was coated over with an immense mass of calcareous matter.—*Dublin Med. Press*, Jan. 21, 1863.

—

51. *Suprapelvic Hæmatocele.*—In the accounts given of this affection, the blood is generally described as being contained in the peritoneal *cul-de-sac* behind the uterus, and as forming a tumour capable of being felt through the rectum and vagina, and sometimes by pressure in the hypogastric region. Some cases, however, which have come under M. Gosselin's observation, have led him to the conclusion that the effusion from the ovary may (from some as yet unknown cause) be arrested *above* the pelvis, and form a tumour capable of being detected by palpation in the hypogastric region alone, and not by the vagina or rectum. One patient under his care presented on two separate occasions, after symptoms resembling those of peritonitis, a tumour of the size of a fist in the left side of the abdomen; it disappeared readily each time, without any discharge of pus by the alvine excretion, by the urine, or by the vagina. M. Gosselin proposes to term this variety "suprapelvic hæmatocele."—*British Med. Journal*, June 7, 1863, from *Gaz. des Hôpitaux*, 19 Avril, 1862.

—

52. *Placentæ of Triplets.*—Dr. Grimsdale showed a specimen of placentæ of triplets to the Liverpool Medical Institution (December 11, 1862). All the three children are now alive. Two of them measured each eighteen inches in length, and the other seventeen; they were strong children. The placentæ were by no means small; two of them were connected together, the third was quite separate.—*British Medical Journal*, January 10, 1863.

—

53. *Induration of the Sterno-Cleido-Mastoid Muscle in New-Born Infants.*—Dr. Melchiori, calls attention to occasional occurrence in new-born infants of an induration of the sterno-cleido-mastoid muscle; an affection not hitherto described, we believe, by any writer.

Some time after birth, an infant is occasionally observed to move its neck with difficulty and to suffer more or less pain from such movement. On examination, there will be found in the substance of one of the sterno-mastoid, a hard fusiform tumour of sometimes notable size. In all the cases observed by Dr. M., the tumour disappeared by resolution and the muscle recovered its functions. The disease at the onset appearing inflammatory, emollients are indicated, afterwards the treatment is expectant. Dr. M. cannot ascribe the affection to any well determined cause; but he thinks that it may be attributed to the compression of the muscle, and to the rupture of some of its fibres during delivery.

Dr. Dolbeau has recently observed a case of this at the Hôpital St. Louis, in a new-born infant. The tumour was of the size of a large almond, and was seated in the right sterno-mastoid muscle—there was no discolorization of the skin.—*Gazette Hebdomadaire de Méd. et de Chirurg.*, 19 Sept. 1862, and *Annali Omoclei.*

MEDICAL JURISPRUDENCE AND TOXICOLOGY.

54. *Dialysis as applied to the Detection of Poisons in Medico-legal Cases.*—Mr. E. R. HARVEY, Lecturer on Physical Chemistry at St. George's Hospital, relates (*Lancet*, Jan. 3, 1863) a number of experiments made by him in the laboratory of the St. George's Hospital, with a view of determining the value of dialysis as a method of separating poisons from organic mixtures. From these experiments, he states, it appears that metallic poisons are detected far more rapidly by dialysis than are organic substances; that the presence of colloidal matter does hinder, to some extent, the separation even of the inorganic crystalloids; and that if colloidal matter be placed on a dialyser, a small quantity of it will be found, in twenty-four hours, in the diffusate. Thus, although dialysis may in some medico-legal cases be of assistance to the chemist, it would be dangerous to regard it as a substitute for the old and approved methods of analysis when poison is suspected.

—

55. *Poisoning of a Child by a large Dose of Morphia.*—Mr. L. WINTERBOTHAM records (*Lancet*, Jan. 3, 1863) a case in which a child two years and three months old, swallowed a solution of a grain of acetate of morphia in an ounce of oxymel of squills. It remained undisturbed in the system for two hours and a half. At the end of this period free vomiting was induced by an emetic of sulphate of zinc, and under the use of the ordinary remedies recovery took place.

—

56. *Poisoning by Morphia—Caffeine as an Antidote.*—Dr. ANSTIE records (*Med. Times and Gaz.*, Feb. 7, 1863) a case of poisoning by three grains of morphia given inadvertently as an injection. Caffeine was given with temporary benefit, but the patient died 16½ hours after the administration of the enema.

This case, Dr. A. says, signally refutes the notion which unaccountably prevails that opiates do not act so powerfully when given by the rectum as by the mouth.

Dr. A. views favourably the plan of treating such cases by caffeine as recommended by Dr. Campbell, of Augusta, Ga., and successfully employed by him in one case (see this Journal for July, 1860, p. 282), though it failed in another (see this Journal for Oct. 1860, p. 570).

"The teaching," he says, "of all the experiments which have been made with caffeine is, that this substance has a very powerful stimulating influence upon the heart, as, indeed, we might expect beforehand, from familiar acquaintance with the effects of its diluted form—coffee and tea. The action of the heart being once roused, the languid circulation of the brain is quickened, and the patient is restored to a certain degree of consciousness, perhaps sufficient to enable him to take part in the measures adopted for his recovery. For these reasons, it appears to me that caffeine is an appropriate physiological antidote to opium—far more so, at any rate, than belladonna, towards which attention seems to have been attracted solely on account of the apparent opposition between its effects and those of opium on the pupil, which appears to me an insufficient basis for the hypothesis that the two agents are mutually antagonistic in their effects on the nervous system generally. * * *

"It must be remembered that opium kills, by causing a cessation of the respiratory movements. One of the best means to meet this danger is, doubtless, the employment of artificial respiration; but a far better way of preventing its occurrence at all is to keep the brain, and, consequently, the intelligence and consciousness, in a state of activity. If once a patient, suffering from opium poisoning, becomes thoroughly unconscious, he becomes unable to make those voluntary efforts at respiration which are far more likely to prevent its cessation than artificial processes are to restore it when once it has ceased.

"Now, there can be little doubt that caffeine quickens the circulation generally; and there are some special reasons for thinking that it especially exerts

an influence upon the circulation of the brain; it would, therefore, be well adapted to this particular purpose."

—

57. *Poisoning with Belladonna successfully treated with Opium.*—[This is the heading to the following case recorded in the *Dublin Quarterly Journal of Medical Science*, February, 1863. We extract it, though we must say that we do not attach much value to it as adding anything to the facts already recorded showing the antagonistical action of belladonna and opium. The case is too imperfectly detailed; there is not sufficient evidence that the child took a decidedly poisonous dose of the belladonna, and further the amount of opium which sufficed to arrest the symptoms was so small that we cannot but suspect the patient might have got well without the administration of the antidote.]

"John Mulligan, aged two years and two months, was admitted into the Meath Hospital, under the care of Surgeon Macnamara, on the 31st day of October, 1862, labouring under the effects of poisoning by belladonna.

"*History.*—His mother stated that she lives at Rose Hall, Templeogue, County Dublin, and that, about half-past nine o'clock this morning, the child got into an empty room in which there was a small pot containing extract of belladonna, of which the child must have taken some, for she found his face and clothes smeared over with it. Some time after she saw the child fall, and then remarked that he had a wild look about the eyes, upon which she brought him into hospital at half-past three o'clock P. M.

"*Symptoms.*—On examination I found the pulse strong, the pupils greatly dilated, he picked and pulled at his clothes, and was delirious. The mother having brought the pot which was found with the child, the contents were at once recognized to be extract of belladonna.

"*Treatment.*—On the patient being put to bed I gave an emetic consisting of sulph. of zinc. gr. x, and pulv. ipec. gr. vi, which had the desired effect; the matter vomited had no trace of belladonna. Surgeon Macnamara having been sent for, ordered an enema of castor oil and turpentine to be given, which came away without any signs of belladonna being present in it. A short time after, five drops of tincture of opium were given; after one hour three drops, and every hour after two drops, until the patient fell asleep, which was at a quarter before one o'clock A. M., up to which time there was no apparent contraction of the pupils. He slept quietly until ten minutes before two o'clock, when he started up and began crying. I then remarked, for the first time, that the pupils had contracted a little; he fell asleep again in about five minutes, and slept quietly until half-past six o'clock A. M., when all the delirium had passed away, and the pupils were a little more contracted. He has been running about the ward all day.

"*Result.*—November 1st, at 12 o'clock, Surgeon Macnamara ordered two drops of the tincture of opium to be given, and he has been going on remarkably well ever since; six o'clock P. M., going on well, contraction of the pupils apparent; ten o'clock P. M., sleeping soundly.

"November 2d, three o'clock A. M., slept soundly all night, the pupils still a little dilated. Ten o'clock A. M., the patient has left the hospital cured."

—

58. *Rupture of the Heart attributed to direct Violence.*—Dr. Dickinson exhibited to the Pathological Society of London (Jan. 6, 1863) a specimen of this. The subject from whom it was obtained was a child 5 years of age, who was knocked down and run over by a cart. When brought to the Hospital she was quite dead. There was no mark of injury upon any part of the body. At the post-mortem the pericardium was found to be full of blood, which had issued from a transverse rent across the apex of the heart, which cut off all but a sort of fringe on the anterior aspect. Both ventricles were laid open. The muscular substance was torn to a greater extent than the pericardium. The spine and ribs were unbroken, and there was no injury to any other organ. It was obvious that the injury to the heart had been occasioned by the accident. A sudden spasmodic action, from terror or exertion, even if sufficient to rupture the perfectly healthy heart of a child, which is highly improbable, could scarcely be supposed to tear both ventricles in exactly adjoining situations. Moreover,

when the heart is ruptured spontaneously it is almost always found that the rent is considerably higher up the wall of the ventricle than in the present case. Dr. Dickinson concluded that the cart had passed over the back of the child, and compressed, without breaking, the yielding structures of the thorax, so as to squeeze off the apex of the heart by means of some prominent bone, probably a rib. It must be noted that the rupture commenced on the posterior aspect of the heart.

A case was then related of a patient, thirty-five years of age, whose leg had been crushed by a gate falling on it. The leg was amputated; the man died suddenly some days afterwards. The right ventricle was found to be ruptured, probably, in this case, from mental emotion.

Mr. Hutchinson mentioned a similar case. In it a child was knocked down in the street, and died on its way to the London Hospital. There was no mark of bruise on the chest nor any fracture of rib, but the heart was found ruptured; the right lung near its root was also torn. The evidence was conflicting as to whether or not the wheel had passed over the child, but in all probability it had done so. The elasticity of the walls of the chest in children might account for the non-occurrence of fracture of ribs, and the fact that death took place from sudden and complete arrest of the heart's action, for the entire absence of bruising or ecchymosis.

Dr. Brinton said that rupture of the heart would follow the most severe accidents, for instance, a blow on the head. He could scarcely accept Dr. Dickinson's theory of the cause of rupture in his specimen.

Dr. C. J. B. Williams alluded to great contraction of the walls of the ventricle in the specimen exhibited.

Dr. Leared related a case in which a man died suddenly after the fall of part of a wall on him. The pericardium was full of blood, and there was a jagged rupture of the ventricle.

Mr. Spencer Wells related a case in which a sailor, having been struck on the chest by an officer, walked away and died shortly afterwards, whilst vomiting. There was a small aneurism of the aorta, which had been ruptured. The question raised on the trial was, whether death was due to the blow or not?—*Med. Times and Gaz.*, Jan. 3, 1863.

MISCELLANEOUS.

59. *State of Epidemic Disease in Great Britain in* 1861–'62.—Dr. J. N. RADCLIFFE read a detailed report on this subject before the Epidemiological Society (Dec. 1, 1862).

The report referred to the twelve months ending September 30, 1862. The following is a recapitulation of some of the principal facts recorded: The health *status* of the English population, as estimated from the unusually low rate of mortality throughout the year, was generally good, notwithstanding dearness of provisions and an excessive amount of pauperism. The health *status* of the Scottish population was markedly below the average, as shown by the large amount of sickness prevalent in the last quarter of 1861, and the high rate of mortality since the commencement of 1862. The average death-rate of Scotland, it is well to remark, is below that of England. Thus, during the six years 1855–60, the annual proportion of deaths in England was 219 per 10,000 population: during the same period in Scotland the proportion was 208. The high range of temperature in the winter months, and low range during the summer, in England, exercised a favourable influence over the health, notwithstanding much wet and variability of weather. In Scotland similar conditions of temperature and weather existed, but to an exaggerated extent; and the great changes which were experienced, and especially the undue humidity of the atmosphere, were apparently the fostering causes of the influenza and throat affections, which appear to have been more common there than in England. The epidemic

diseases most prevalent in England were continued fever, scarlatina, measles, diphtheria, whooping-cough, and smallpox. In Scotland the same diseases, with the exception of smallpox; also, and more particularly, sore-throat, often assuming a diphtheritic character, and accompanied by diphtheria, played the chief part in the epidemiology of the twelve months. In both parts of the kingdom continued fever prevailed most commonly in the autumn quarter of 1861; and in England the affection would appear to have been more general in the northern than in the southern portion of the kingdom. In both countries scarlatina was widely prevalent in the northern districts in the last quarter of 1861; but the disease became more active in the southern district in the third quarter of 1862. Measles prevailed extensively, and in some instances very fatally, in the winter quarter in England. In Scotland the disease appears to have been most prevalent in the spring and summer quarters. Diphtheria was, in England, principally fatal in the autumn quarter, but the disease prevailed, more or less, in every registration district during the year. In Scotland, the disease, together with sore-throat, appears to have been epidemic throughout the year. Whooping-cough was widely prevalent in England during the winter quarter; in Scotland, during the winter and spring quarters. Influenza was epidemic in Scotland in the autumn and winter quarters. Finally, smallpox broke out in many districts of England, but more particularly in the eastern, southwestern, and northern counties, and in Yorkshire. In no instance did an outbreak of any of the different diseases referred to as occurring in England assume what may be termed "general proportions." The outbreaks were essentially local; but the dispersion of the various maladies, or of their centres of manifestation, over the kingdom—the cropping out of exaggeration of these diseases in different localities, and the effects they apparently exercised upon the sickness and mortality of certain districts, without heightening the death-rate of the whole kingdom—present a study of great interest. From this study it is reasonable to conclude that, in dealing with these local outbreaks of epidemic disease in ordinary periods, the best chance is afforded of warding off the widespread and more deadly outbreaks of extraordinary periods. The detailed mortuary returns for Scotland extend, as yet, only to the year 1857; but the returns for England are brought down to 1860. From the latter, then, may be obtained information as to the *status* of the several epidemic diseases most prevalent in the twelve months discussed, immediately prior to that period. Since 1857 the mortality from continued fever has slowly declined; in that year the deaths from this cause amounted to 19,016; in 1860 they were 13,012. In 1855 the mortality from scarlatina was 17,314; in 1856 and 1857, the number of deaths from this disease fell considerably, the mortality in the latter year being 12,646. The year following the mortality increased enormously, becoming well nigh doubled, the number of deaths from the malady being 23,711. In 1859 the number fell to 19,310; and in 1860 it became as low as 9305. Prior to 1855 deaths from scarlatina, cynanche maligna, and diphtheria, were not separated in the Registrar-General's report. Whether the detailed reports of the Registrar-General will show an increase of the mortality in the whole of England from scarlatina, during 1861 and 1862, as great as occurred in London, cannot be predicted. It is certain, however, that the activity of scarlet fever was great in several parts of the kingdom. The deaths from cynanche maligna in 1855 amounted to 199; in 1858, to 1770; in 1860, the mortality from the disease had decreased to 376. The mortality from measles was largely augmented in 1858, and there was a steady increase in the number of deaths from the disease in the two subsequent years. The deaths registered from diphtheria in 1855 numbered 186; in 1859, 9587; in 1860, the mortality from this disease had decreased to 5212. The mortality from whooping-cough, in 1860, was the lowest since 1852; and the mortality from smallpox had declined from 6460 in 1858, to 2749 in 1860. The reduced rate of mortality throughout England which occurred in 1860, was chiefly due, Dr. Farr states, to the decline of the number of deaths from scarlatina, diphtheria, and diarrhœa. A decrease also in the mortality from smallpox, erysipelas, and cholera contributed to the favourable results. The most noteworthy fact in the epidemiology of the metropolis during the twelve months was the remarkable outbreak of typhus. In 1858, 1859, and 1860, typhus had

become so rare a disease in London, that the question of converting the Fever Hospital to other uses was seriously entertained. In 1861 typhus again became epidemic; and since January, 1862, the number of admissions to the Fever Hospital for typhus has exceeded that at any period of the history of the Hospital. Dr. Murchison attributes this epidemic to the artificial scarcity produced by the system of strikes, which had for some time previously disorganized the labour market, and the condensation of population caused by the arrival of labourers in the metropolis from the country in search of work.[1] The mortality from continued fever in London, doubtless owing to the outbreaks of typhus, was in excess of that of any like period since 1848. Indeed, the total mortality of the winter, spring, and summer quarters of 1862 (2839) from this disease was alone in excess of that of any year since 1848. The true source of this excess of mortality would not have been rightly understood except by the careful nosological and etiological distinction of the forms of continued fever insisted upon by Dr. Murchison. The mortality from scarlatina was but a little below that from continued fever during the twelve months—the total mortality from the former malady being 3437; from the latter, 3463. Next in order of mortality was whooping-cough. Continued fever, scarlatina, and whooping-cough were the chief epidemic affections of the period under observation in the metropolis. The mortality from continued fever increased to a maximum in the second quarter of 1862. The mortality from scarlatina was at its maximum in the last quarter of 1861, then decreased throughout the two succeeding quarters, but largely increased again in the summer quarter of 1862. The mortality from whooping-cough was greatest in the first quarter of 1862. Diphtheria was still largely fatal, having occasioned 625 deaths. Mr. Radcliffe detailed the history of the outbreak of typhus at Preston, in Lancashire, to the date of reading the report: he dwelt also at some length on epizootic diseases, brought together the chief accessible information on epiphytics, and terminated his report by a brief analysis of the principal contributions to epidemiological literature in Great Britain during 1861–62. The chief diseases prevalent among domesticated animals were epizootic pleuro-pneumonia, and the vesicular disease of the mouth and feet. Scores of sheep suffered and were lost from *filario* in the bronchial tubes and abomasum; there were several local but very fatal outbreaks of influenza among horses; and an outbreak of *variola ovina* occurred in Wiltshire. The history of the latter outbreak, which occasioned great alarm at the time, will be imperfect until the official reports are published. There was no special disease among plants during the year.—*Medical Times and Gazette*, February 14, 1863.

—

60. *Sir David Brewster on the Characteristics of the Age.*—The following extracts from the address delivered at the opening of the winter session of Edinburgh University by Sir David Brewster, will be found interesting:—

Were we asked to characterize the age in which we live, we should describe it as remarkable for its love of the mysterious and the marvellous, its passion for the supernatural, and its morbid craving for what the eye cannot see, nor the ear hear, nor the judgment comprehend. I do not allude to clairvoyance and spirit-raising, which are even now misleading men of high attainments, but to more specious extravagances appealing at this moment to our faith, and more likely, from their alleged foundation in science, to captivate the young and the unwary. These speculations have been long working in the public mind, fascinating us occasionally in the creations of the poet, and investing the humblest observer with a power which he delights to exercise, and is therefore unwilling to resign. I refer to the so-called science of physiognomy, but more especially to that morbid expansion of it called the physiognomy of the human form, which has been elaborated in Germany, and is now likely to obtain possession of the English mind. The fundamental propositions of this new art are, "that the outer form of man has been designed on purpose to represent his mental character," "that the invisible is revealed in the visible," "that the body is the

[1] See Dr. Murchison's recently published treatise on the "Continued Fevers of Great Britain" (page 52), for an account of this epidemic.

image of the mind," and that every man's mental nature may be discovered in his external form. The physiologist who has taken the most active part in advocating these opinions is Dr. Carus, of Dresden, Physician to the late King of Saxony, and so eminent professionally that he was recently elected a corresponding member of the National Institute of France. Had his speculations remained in the German tongue, I should not have ventured to bring them to your knowledge. They have been adapted, however, and extended, both by French and English writers, and having been brought prominently forward, and defended and amplified in the most religious, conservative, and best circulated quarterly journal of the day, they have taken an aggressive position which it becomes a public duty to assail. In support of this doctrine of symbols in the human form, as it is called, the leading argument is derived from the nearly universal assent to it implied in the practice of judging of men by their personal appearance. The opinions of Sir Thomas Brown, Addison, Cowper, Fielding, Southey, and others—men quite incapable of carrying on a scientific investigation—are all marshalled in its favour, and the student is thus prejudiced, at the commencement of his inquiry, by the authority of great names. A second argument is derived from the occurrence in various languages of such expressions as long-headed, stiff-necked, etc., which are supposed to establish the existence of a general belief in the correspondence, not only of mind and body, but of mind and shape. In want of any other arguments, our physiognomists dogmatically declare that the expressions of rage, or grief, or fear, have been "divinely designed on purpose that the inner mind may be known to those who watch the outer man." We know very little of the true inner life of our neighbours, and we should not like that our neighbours knew much more of our own. In some persons their inner life appears to be openly and injuriously displayed. In others it is artfully, wisely, and advantageously concealed; and frequently it is hidden by the very marks which are supposed to display it. Of the individual features which are assumed to be most symbolical of the intellectual and moral character, the size and shape of the head is one of the most important. Without any inductive evidence of this symbolism, we are asked to believe that large brains and ample foreheads are found in certain individuals of high intellectual capacity; but we never hear of the small brains and narrow brows of men of equal talent, or of the opposite class of imbeciles who have heads and brains like those of their neighbours. In this new physiognomy, a head large in the mid-region indicates a predominance of the feelings over the other faculties. A proneness to superstition and fanaticism is shown by a little increase in the elevation; and a head large behind evinces practical ability, and, as Dr. Carus says, characterizes a race which will give birth to great historic names! Small heads, however, are not to be despised. They indicate talent, but not genius; while very small ones belong, he says, to the excitable class from whom "a great part of the misery of society arises." In the varying expressions of the human face, physiognomists find a better support for their views. That the emotions of the past and the present leave permanent traces on the human countenance is, doubtless, true, and to this extent we are all physiognomists, often very presumptuous ones, and, excepting accidental coincidences, always in the wrong, when we infer from any external appearance the character and disposition of our neighbour. In every class of society we encounter faces which we instinctively shun, and others to which we as instinctively cling. But how frequently have we found our estimates to be false? The repulsive aspect has proved to be the result of physical suffering, of domestic disquiet, or of ruined fortunes; and, under the bland and smiling countenance, a heart deceitful and vindictive, and "desperately wicked," has often been found concealed. The countenance, too, which in manhood was noble and benign, we may have seen scarred in the battle of life, and furrowed with the deep lines which the baseness of friends and the injustice of the world never fail to imprint. And when the manly aspirant after wealth or fame has been cruelly worsted in the race of ambition, and has displayed on the outer man the impress of the emotions which disturbed him, how often have we seen him under altered circumstances resuming the joyous expression of his youth, which misfortune has but temporarily disguised. These views will acquire additional support if we

examine large groups of individuals living under the same influences, and therefore likely to have the same external development. In the haunts of vice, within the precincts of the gaol, in the stock exchange, and in the marts of commerce, we shall find the same variety of form and expression, and the same difficulty in discovering vice or virtue in the outer man. The criminal in the dock, charged with murder, will often bear an honourable comparison with the functionary who prosecutes him, the advocate who defends him, or the judge who tries him. In descending to individual features, the eyes, nose, mouth, chin, ears, and even the hair, are said to instruct us in the character of our neighbour; and the neck, trunk, hands, and feet become monitors in the same school. Of all these teachers, the eye and the nose are the most accomplished. Dr. Carus tells us that the eye speaks to us in its colours and in its lustre; that yellow indicates genius; dark blue, effeminacy; light blue and gray, activity; green, courage; and hazel, mental depth; and he pronounces this organ to be so richly symbolical that, instead of saying that the "style is the man," we might more justly say that the "eye is the man." In refutation of such assumptions, we assert that there is no expression whatever in the human eyeball, consisting of a transparent cornea, a coloured iris, with the pupil in its centre, and the white sclerotic coat. You may as hopefully search for expression in a watch-glass as in the cornea, as hopefully in a coloured wafer with a hole in the centre as in the iris, and as well in a piece of white kid leather as in the sclerotic coat. Such is a brief notice of the new science which is to maintain the waning excitement of more dangerous and offensive speculations. The talents and eloquence of its German and English expositors may obtain for it a temporary popularity; and philosophers, male and female, will doubtless study and apply its symbols.—*Brit. Med. Journ.*, Nov. 29, 1862.

AMERICAN INTELLIGENCE.

ORIGINAL COMMUNICATIONS.

Circular from the Surgeon-General U. S. A.—[We take pleasure in calling attention to the following circular, which we take for granted is all that is necessary to secure the cordial and general co-operation of the profession in the collection of the information desired by the Surgeon-General. The facts thus accumulated cannot fail to contribute to the advancement of our science, and be most useful to the profession:—]

SURGEON-GENERAL'S OFFICE,
WASHINGTON CITY, D. C., *Feb.* 20, 1863.

The Surgeon-General would remind the medical profession that, some months since, a medical officer was detailed by the department to prepare the surgical history of the rebellion. It is intended that this history shall embrace, among other topics, the collected results of the gunshot injuries of the war, and of the operations performed for their relief.

Many facts, bearing on these subjects, can be obtained by an examination of the returns of the various military hospitals; and explicit orders have been issued to the surgeons in charge as to the manner of reporting. Yet it is found, practically, that the results of all cases cannot be included in these reports.

In every depot of wounded, and after every action, there exists a large class of injured men, who, in various stages of convalescence, pass from the observation and treatment of the military surgeon, and are lost sight of by the medical department. These patients are those who are either furloughed or discharged the service by military authority before their treatment is entirely terminated. Under such circumstances, all past records of these cases are rendered valueless from the absence of a positive knowledge of their results.

To remedy this evil the Surgeon-General appeals to the profession of the country, and solicits their co-operation. He would ask every physician and surgeon who may be called upon to treat any officer or soldier wounded in service, carefully to note the results of the case, to record his observations, and, when the case shall have terminated, to transmit a copy of his observations to the Surgeon-General's office.

The following form is suggested:—

FORM. *Date of Communication.*

Character of Injury. *Name and Address of Physician forwarding it.*

	Where wounded and date.	To what hospital transported.	What operations, &c., performed.	By whom performed.	Date of furlough or discharge.	Present condition of patients. Account of case. Treatment, &c. Result.
Patient's name and age.						
" rank.						
" regiment & Co.						
" postal address.						

In all cases of recovery after *excisions* of bone, the amount and character of the movements executed by the patient, with the injured limb, should be accurately described. Where amputation has been practised, the character of the stump should be noted, especially when the operation has been performed through an articulation. In cases of compound fracture the point of fracture should be stated, as also the degree of efficiency of the limb remaining after treatment. In compound fractures of the femur the amount of shortening should be measured, and the strength and usefulness of the limb described. In those patients in whom injuries of the skull have occurred, or upon whom the trephine has been applied, the mental and physical conditions should alike be dwelt upon.

In thus placing before the profession the objects he desires to obtain, the Surgeon-General trusts that he will meet with active co-operation. By the means above indicated much information that is valuable may be collected, and the interests of the science of surgery materially advanced.

W. A. HAMMOND,
Surgeon-General U. S. A.

Medical journals will please copy.

DOMESTIC SUMMARY.

Double Vision with each and both Eyes.—Dr. G. A. BETHUNE records (*Boston Medical and Surgical Journal*, February 12, 1863), the following example of this remarkable disturbance of vision:—

"Mrs. ——, aged 37, the wife of a physician, and who had formerly taught in one of the highest of our private schools, consulted me first on the 10th of March, 1862. Naturally far-sighted, and without previous trouble in the eyes, eighteen months ago, after unusual exertion in studying, she was seized with double vision with each and both eyes. She suffers no pain, photophobia, or other subjective symptom. This diplopia does not extend to very near objects, the nearest point being from four to five feet. The new moon she describes as seeing with four horns. The false image seems always to *the left*, except in the case of horizontal lines, as, for instance, a telegraph wire, when it appears *below*. The appearances are the same with either eye covered. By bending the head, she *thinks* to the *left*, the two images coincide. She thinks there has been no variation in the double vision since she first observed it, *when the circumstances are the same*. She observes it more when looking towards the sky, and in clear light, than when the light is weaker.

"She is rather a delicate-looking person, though her general health is good. Her hands and feet are apt to be cold. About six months ago she was attacked with tinnitus of both ears, which still continues.

"On examination, the only abnormal appearance in the eyes is a little tinea ciliaris. She was advised to rest the eyes, to apply a lotion of acetate of lead to them, and a stimulating lotion to the spine. To take sherry wine, and exercise in the open air up to her strength.

"*Jan.* 17, 1863.—Was again seen to-day. No change in eyes. Other things as above, except that the tinnitus has diminished. The left pupil was dilated with atropine, and the eye examined with Burow's ophthalmoscope. *Nothing abnormal seen.* Two repetitions of this examination, on different days, were made with the same result."

Chestnut Leaves in Whooping-Cough.—Mr. GEORGE C. CLOSE, of Brooklyn, N. Y., speaks highly of the efficacy of the chestnut leaves in whooping-cough. He states that by the recommendation of a physician of New York he gave to

a child with incipient whooping-cough, an infusion of the leaves of the chestnut, made with boiling water and sweetened with sugar. She drank it freely and without objection, the taste not being unpleasant. The cough, which had continued for two weeks, and was evidently growing worse previous to giving the remedy, was immediately relieved, and after two or three days ceased entirely, and has not returned though several months have passed.

Since making this trial, when asked by customers, "What is good for whooping-cough?" he has advised them, if they had no physician in attendance, to try the leaves. In several instances after trying them, they have reported that "they acted like a charm," and gave immediate and great relief.

"I have also heard," he says, "of cases of adults, who were affected with that kind of spasmodic cough which is sometimes caused by some (perhaps slight) source of irritation in the throat, being immediately relieved by the same remedy.

"As I have, occasionally, calls for chestnut leaves, I asked a person who applied for them a few days since, for what purpose he used them? He replied, as a remedy for whooping-cough, for which they were very good, and that they often relieved other kinds of cough also. This shows that their use is becoming somewhat popular as a domestic remedy.

"A very extensive use of an article is required, however, to test its real value as a remedy, and I only present the foregoing facts as warranting, in my judgment, farther trials of the leaves."—*Proceed. Am. Pharm. Assoc.*, 1862, and *Am. Journ. Pharm.*, Jan. 1863.

—

Active Principles of Veratrum Viride.—Mr. G. J. Scattergood, of Philadelphia, has isolated the active principles of the root of veratrum viride, and tried their effects separately on the animal system, in order to ascertain to which of these principles the sedative action of the plant is due.

These principles he says, "appear to be, Firstly: Veratria. Secondly: An alcoholic resin.

"They are obtained in the following manner: The finely ground root is exhausted by the smallest possible quantity of strong alcohol. This tincture is slowly poured into a larger bulk of water, and the mixture exposed to a gentle heat to drive off the alcohol. When this is done, the liquid is raised to the boiling point, and immediately filtered. The resin remains in the filter, while the veratria which appears to exist in this drug in a form soluble in boiling water, is found in the filtrate, from which it may be precipitated by the addition of ammonia. The alkaloid thus obtained is contaminated by another substance of a similar nature to veratria, but insoluble in ether, from which it may be separated by treatment with that menstruum, the veratria being left upon its evaporation, of a yellowish color—requiring further purification. The other substance remains in the residue, and may be extracted from it and obtained in the form of a brownish adhesive mass, by the action of strong alcohol. It is somewhat soluble in water, but precipitated from its aqueous solution by muriatic acid. This solution froths considerably when shaken: Sulphuric acid is colored orange yellow by it. Muriatic acid a delicate red. It appears to be a compound of ammonia with one of the organic acids derived from the root. Its medicinal effects were not examined.

"The medicinal properties of the two active principles before alluded to have been tested principally by experiments upon dogs. In this part of the examination I have been very much assisted by Dr. Saml. R. Percy, of New York, who has kindly tried several experiments at my request, and furnished me with a detailed account of them."

These experiments made upon dogs, "indicate a very great similarity in the general therapeutic properties of the alkaloid and the resin. In each of these cases a great increase of the saliva, prolonged emesis, general prostration and reduction of the pulse were produced; and in every case, but one, dilatation of the pupils also. But it will be noticed that this reduction of the pulse was much greater in those cases when the resin had been administered, than in that in which the alkaloid was given. In the former being from 165 to 41; from 144 to 40; and from 140 to 70; while in the latter it was reduced from 150 only to 112. In another instance in which the same alkaloid prepared by Dr. Percy,

by purifying the commercial veratria, was administered in the dose of one-third of a grain, to a dog weighing 25 lbs., the pulse was likewise only moderately reduced, viz: from 132 to 100, the attendant effects being very much the same as those just described.

"Judging from these parallel experiments, and from the fact that the resin exists in very much larger quantity, than the alkaloid, in this drug, it would appear that the sedative action of veratrum viride is due in greater degree to the alcoholic resin it contains than to its veratria.

"I may add that the action of the resin upon the human system produces results very similar to those just described. On the 14th inst., at 5.15 P. M., I took two grains of the alcoholic resin. Pulse 80. At 6.45, its effects were first apparent in slight spasmodic contractions of the muscles of the leg—these soon passed off and were not afterwards noticed. At 7.45, free vomiting began, accompanied with an increased flow of saliva and general perspiration; the vomiting continued at intervals for upwards of an hour, and until considerable bile had been thrown up; and was followed by painful retching: at 8.45, pulse 60—by this time the feeling of warmth had been succeeded by general coldness of the body and loss of strength. At 9.15, pulse 55. At 9.30 fell asleep. The only effects observed in the morning were general weakness, and a somewhat depressed pulse. No tingling of the skin so frequently occasioned by veratria, nor catharsis, was produced.

"The resin thus experimented with is of a soft consistence, and of a mild, oily, though nauseous taste at first, but leaving after some time a somewhat acrid sensation in the fauces. It is of a brownish-black color. It yields to ether its more oily portion, about one-quarter its weight,—the remainder, insoluble in that menstruum, is left of a harder and more friable consistence. In order to remove any suspicion that the medicinal action of the resin was due to a minute quantity of the alkaloid remaining in it, I administered three-quarters of a grain of the residue left after treating the alcoholic resin with ether (which would have removed any veratria if present) to a half-grown cat. Its effects were very similar to those of the alcoholic resin before mentioned, vomiting, dilatation of the pupils, slight spasms of the muscles, slow breathing, and reduction of the pulse from the neighbourhood of 100 to 42, were produced in the course of a few hours.

"The quantity of resin obtained from 1 lb. avoir. of the dried root of veratrum viride may be stated at about 300 grains—of veratria about 30 grains. From its reaction with sulphuric acid, the tinct. iodine test, and a solution of the iodo-hydrargyrate of potassium, I am of the opinion that it may perhaps be an altered form of veratria. I have not succeeded in detecting the presence of sabadillia. The existence of jervia in the filtrate from which the veratria was precipitated, was thought probable from the white precipitate which was produced in it upon the addition of sulphuric acid."—*Proceed. Am. Pharm. Assoc.*, 1862, and *Am. Journ. Pharm.*, Jan. 1863.

Operation for Compression of the Spinal Cord.—Dr. H. A. POTTER, of Geneva, N. Y., relates (*American Med. Times*, Jan. 10, 1863) the following case of this:—

"A. M. Salsbury, of Phelps, Ontario County, New York, while engaged in gathering walnuts, in October, 1859, fell from a tree a distance of twenty feet, and fractured certain vertebræ in the inferior cervical region. Three days after the accident I was called in consultation. The patient was perfectly conscious, but was unable to move any part of the body or extremities, except the hands, which he could slightly raise, but which would fall upon reaching a certain point, without the least control of the will over them. Sensation was as imperfect as the motion. The patient being a fleshy man, it was difficult to determine the exact point of injury.

"It was decided I should operate, which I did, October 9, 1859. I found the spinous process of the sixth vertebra fractured and displaced, and the arch of the fifth crushed in upon the spinal cord, nearly separating it longitudinally. With some difficulty I removed all that portion comprised in the lamina and spinous process of the fifth and the spinous process of the sixth cervical ver-

tebræ. The sheath of the spinal cord was entire, but, as before stated, the cord itself was much injured.

"I did not see the patient again until the following January, at which time the wound was nearly healed, and he was as comfortable as could be expected; he could sit in an easy chair, could readily move his head, and could converse as freely as any one. He had gained very little from the operation—sensation and motion being as imperfect as when first injured, except that he could use his left hand a little more freely than before. He remained in this unhappy condition until November 29, 1862, when I was again called to see if something might be done to relieve him. During the past three years there had been some spasmodic action of the lower extremities, and thinking that some compression might still exist—which, from the stout and fleshy condition of the neck, had escaped detection in my first examination—and as the situation of the patient could not be made worse, I determined upon another operation, which was made in the presence and with the assistance of Dr. Dox, of Geneva, and Dr. Carpenter, of Phelps.

"I removed the fourth, sixth, and seventh cervical vertebræ, which left the portion of the spinal cord covered by the four inferior cervical vetebræ entirely exposed. The cord had not united, but at the point of the first operation it was well protected by a thick substance, resembling the coat of a large artery. At least an inch of the superior portion of the exposed part was much flattened and thinned, but the sheath was entire. At the connection of the first dorsal vertebra the cord was full, and, to all appearance, in a normal condition. There was no pulsation at any point exposed, but there had been at the first operation; and, in my judgment, the pulsation of the cord will determine very correctly the diagnosis as to the extent of the injury. In two cases upon which I had previously operated, the cord could not be only felt but the *pulsation could be distinctly seen.* In both cases it was simply the yoking in, as it were, of the arch of the vertebra upon the spinal cord—the cord not being in the least separated. The first case was of five months' standing, and was the most perfect instance of paralysis and loss of sensation I have ever seen. A report of the same may be found in the *Journal of Medicine and Collat. Sciences* for March, 1844. It was, I believe, before the time of chloroform, and sensation returned instantaneously upon removing the compression, and a perfect recovery was effected. The other case I did not report. The patient was a coloured man by the name of Susey. The operation was performed at Geneva, New York. I removed the posterior portion of the three inferior cervical vertebræ, and found the cord had simply been pressed against the body of the spinal column; the cord was not separated, and pulsated freely. I had great hopes of his recovery, but he died the fourth day. An autopsy showed fracture of the left parietal and occipital bone. A large clot of blood was also found around the foramen magnum, which was beyond doubt the cause of his death.

"The last operation upon Mr. Salsbury has as yet proved of no benefit to him, and it probably never will, as nearly all connection with the brain is obliterated.

"There are two points I wish to call the attention of the profession to in connection with this class of injuries. The first is, that, in all cases which have come under my notice, and I have seen eight, *when blood is taken from a vein of the arm it is arterial.* This being true, the change from arterial to venous blood must be dependent upon the cerebro-spinal action of the nervous system, and it is not absolutely necessary for the change to take place in the passage through the system.

"The second point is, that, immediately after the receipt of the injury, the patient begins to lose flesh, and during the first few weeks becomes much emaciated. Arriving at a certain point the recuperative powers of the system seem to rally, and nutrition appears perfect—the patients gain flesh in about the same proportion as it was lost.

"Why is this, and what is the cause of the suspension and restoration of nutrition? My own opinion is, that suspension of nutrition is *in consequence of the loss of the nervous action.*

"But what restores it? It cannot come from its original source, for the cause is not removed, and there is no sensation or motion below the injury, and no direct communication with the brain."

Extract from the Annual Report of the Surgeon-General, U. S. A.—"During the past year the health of the troops has been remarkably excellent. No epidemics of any severity have appeared among them, and those diseases which affect men in camp have been kept at a low minimum. Scurvy has been almost entirely prevented, and yellow fever, from which much was feared, has had but few victims. This immunity is due to the excellent hygienic arrangements instituted, and to the cordial manner in which generals in commands have coöperated with the proper authorities.

"In an army of the size of that now maintained by the United States, it was of course to be expected that the absolute number of sick would be very large, and the important battles which have been fought have thrown a large number of wounded on the care of the department. At present the total number under the charge of officers of the medical department is not short of 70,000, and immediately after the battle of Antietam it was over 90,000. That this large number could be provided for without some cases of unnecessary suffering occurring, would perhaps be too much to expect; but I must commend the medical corps, both of the regular and volunteer service, for the faithful and efficient manner in which their duties have been performed. In the discharge of their duties medical officers have been very much aided by the contributions of the people of the country, and by the efficient coöperation of the Sanitary Commission and Relief Associations.

"In addition to providing the sick and wounded with medical attendance and medicines, much has been done by the department in furnishing food, clothing, and comforts of various kinds. From much observation, both at home and abroad, and from the concurrent testimony of distinguished foreign medical officers, I am satisfied that never before were the sick and wounded of an army so well cared for as are those who have suffered for their country in the present rebellion. The hospitals, I take pride in saying, are a credit to the nation.

"Before the several medical boards in session during the year (from July 1st, 1861, to June 30th, 1862), a large number of applicants for appointment in the medical staff of the army were invited by the Secretary of War. Of these, sixty-six candidates duly presented themselves. Thirty-three of this number were approved, and five rejected; the remaining twenty-eight withdrew, one on account of physical disqualification. Before the same boards, eleven assistant surgeons were examined for promotion of whom nine were found qualified, and two not considered as coming up to the standard of merit required. In the examination by these boards, the standard of attainments required for success was much lowered, the Board in New York being ordered to examine two candidates each day for the regular army, while the examination of candidates for the appointment of surgeon of brigade became little more than a farce. Since the 1st of June last, however, the standard of examination has been raised, and the gentlemen now entering the medical staff have been found fully competent to undertake the important trust with which they are charged.

"The breaking out of the rebellion found the United States Army with a medical department arranged for a peace establishment of 15,000 men. Experience soon demonstrated the fact, that, however efficient its officers might be, the organization was such as to ill adapt it to the necessities of a large force in time of war. Partial progress in the right direction was made by Congress in increasing the rank of the surgeon-general, adding a limited inspecting corps, and increasing the number of surgeons, assistant surgeons, medical cadets, and hospital stewards. The department was also placed on a more independent footing, and its whole status elevated. But there are still other measures, which, if adopted, cannot fail to add to the efficiency of the department, and these I desire to urge through you on the attention of Congress.

"First among these is the establishment of a permanent hospital and ambulance corps, composed of men specially enlisted for duty in the medical department, and properly officered, who shall be required to perform the duties of nurses in the hospitals, and to attend to the service of the ambulances in the field. By the establishment of this corps several thousand soldiers, now detached as nurses, cooks, &c., would be returned to duty with their regiments, and the expense now incurred by the necessary employment of contract nurses

obviated. A corps formed upon the basis of two men to each company in service, organized into companies of 100 privates, with one Captain, two Lieutenants, four Sergeants and eight Corporals to each company, would relieve the line of the army from all details for the medical department, and enable the department to render far more efficient services to the sick and wounded than it is capable of affording under the present system. The necessity of such a corps has been recognized in all European armies, and I am able to speak from personal observation of the great advantages to be derived from it.

"I regard an increase of the medical corps, both of the regular and volunteer forces, as absolutely necessary. The law of Congress, approved July 2d, 1862, provides sufficiently, except for cavalry and artillery regiments, for the want of troops in the field, but the service in hospitals has to be filled to a great extent by the employment of contract physicians. I therefore recommend that the medical corps of the regular army be increased by twenty surgeons and forty assistant surgeons, and the staff corps of volunteer medical officers by fifty surgeons and two hundred and fifty assistant surgeons. This last corps now consists of two hundred surgeons and a hundred and twenty assistant surgeons. The cavalry and artillery organization requires medical officers as much as infantry. The omission on the part of Congress should be supplied; a surgeon and two assistant surgeons should be authorized for each regiment of cavalry, and for each regiment of heavy artillery, and an assistant surgeon for each light battery.

"Under the first section of the act of June 30th, 1834, assistant surgeons of the regular army must have served five years before being eligible for promotion as surgeon. On the 1st of November there were but six assistant surgeons in the army who had served five years. The effect of this law will be to prevent the filling of vacancies which may occur in the grade of surgeon, and I therefore recommend that so much of said section as requires assistant surgeons to serve five years as such, before being eligible to Surgeoncies, be repealed.

"The number of medical cadets is altogether too small for the necessities of the service. I therefore recommend that authority be given to appoint as many as may be required, in accordance with existing laws on the subject.

"The institution of a medical inspecting corps has been productive of excellent results. The number of inspectors authorized is, however, too limited to enable the service to be as efficiently performed as is desirable. I therefore recommend that two inspectors general and eight inspectors be added to the present organization. The authorization of an additional assistant surgeon-general would also be a measure of great propriety.

"Considerable progress has been made in the establishment of an army medical museum. The advantages to the service and to science from such an institution cannot be over estimated. I respectfully recommend that a small annual appropriation be made for its benefit.

"An army medical school, in which medical cadets and others seeking admission into the corps, could recieve such special instruction as would better fit them for commissions, and which they cannot obtain in the ordinary medical schools, is a great desideratum. Such an institution could be established in connection with any general hospital, with but little if any expense to the United States. A hospital of a more permanent character than any now in this city is, I think, necessary, and will be required for years after the present rebellion has ceased. I therefore recommend that suitable buildings be purchased or erected for that purpose. If this is done, the medical school and museum will be important accessions to it.

"Experience has shown that a most useful class of officers was authorized by the act relative to the medical storekeepers. The number now authorized is too small. They could very properly perform the duties of medical purveyors, now performed by medical officers, and thus officers who have been educated with special reference to service as physicians and surgeons, and who are now acting as medical purveyors, would be enabled to resume their proper duties. I therefore recommend an addition to the medical storekeepers.

"At present the washing of clothes in general hospitals is provided for as follows: One matron is provided for every twenty patients, who receives a com-

pensation of six dollars per month and one ration. Great difficulty is experienced in large general hospitals in procuring a sufficient number of matrons to perform this duty, and I have the honor to propose that, instead of this now unreliable plan, a sum of money equivalent to the pay and allowance of a matron, say twelve dollars for every twenty patients, be monthly allowed to every general hospital, to be appropriated for laundry purposes at the discretion of the surgeon in charge, whether to the payment of matrons or the payment of bills for washing by steam or otherwise.

"The 10th section of the act approved July 17, 1862, gives additional rank to officers of the Adjutant-Generals, Quartermasters, Subsistence, and Inspector Generals Department who are serving on the staff of Commanders of Army Corps. There is, I think, manifest propriety in extending the provisions of this act to the officers of the medical department who may be on duty with such command as medical directors, and I respectfully ask for such extension.

"The Engineer and Ordnance Departments are charged with the erection of buildings which requires special knowledge. The building of hospitals also requires knowledge of a peculiar character, which is not ordinarily possessed by officers out of the medical department. It would, therefore, appear obviously proper that the medical department should be charged with the duty of building the hospitals which it is their duty to administer.

"In the matter of transportation the interests of the service require that the medical department should be independent. Much suffering has been caused by the impossibility of furnishing supplies to the wounded, when those supplies were within a few miles of them in great abundance.

"The establishment of a laboratory, from which the medical department could draw its supplies of chemical and pharmaceutical preparations, similar to that now so successfully carried on by the medical department of the Navy, would be a measure of great utility and economy. I therefore respectfully recommend that authority be given for this purpose.

"In regard to the age at which recruits are received into service a change is imperatively demanded, both for the interests of the army and the welfare of individuals. The minimum is now fixed at eighteen years, and it is not uncommon to find soldiers of sixteen years old. Youths of these ages are not developed, and are not fit to endure the fatigues and privations of military life. They soon break down, become sick, and are thrown upon the hospitals. As a measure of economy I recommend that the service age of recruits be fixed by law at twenty years.

"The present manner of supporting the cartridge-box is productive of hernia or rupture. Many instances in support of this statement have occurred since the commencement of the rebellion, and reports on the subject are frequently received from medical officers. I recommend that, instead of being carried by a belt around the waist, the cartridge-box be supported by a shoulder-strap. This would entirely obviate the evil.

"At the last session of Congress the sum of two millions of dollars was appropriated for the relief of discharged soldiers. I recommend that one million of dollars of this sum be set aside for the establishment of a permanent home for those who have been disabled in their country's service. This measure is one of such importance that I forbear entering into details at this early period. An establishment of the kind, organized upon an approved plan, would be productive of incalculable benefit.

"Soon after my appointment I issued circulars to medical officers, inviting them to co-operate in furnishing materials for a Medical and Surgical History of the Rebellion. A large number of memoirs and reports of great interest to medical science, and military surgery especially, have been collected, and are now being systematically arranged. The greatest interest is felt in this labour by the medical officers of the army and physicians at large.

"The reorganization of the medical department necessitated a new set of regulations for its guidance. Under your orders a board has been in session preparing a new code. Their labours have been very much interfered with by the necessity of detailing them, from time to time, for more imperative duties,

but I expect to be able to submit to you, in a short time, a complete set of regulations for your approval.

"I have deemed it my duty, with your sanction, to visit, from time to time, the hospitals and armies of the eastern portion of the country. I have thus been enabled to make myself acquainted with their sanitary condition and medical wants. I hope, ere long, to be able to extend these inspections to the west.

"A uniform diet table for general hospitals has been prepared with great care, and promises to work advantageously."

OBITUARY NOTICES.

Died, in Louisville, Ky., on the 7th March, 1863, of broncho-pneumonia, complicated with gastric and renal derangement, and attended with fever of the typhoid type, CHARLES W. SHORT, M. D., late Prof. of Materia Medica in the University of Louisville.

Dr. Short was born in Greenfield, Woodford County, Kentucky, October 6, 1794, and was, therefore, in the sixty-ninth year of his age at the period of his death.

Such a man ought not to be allowed to pass from this stage of action without some attempt to appreciate the part he performed in the drama of life. Occupying, for so many years, the honourable and useful position of a public teacher in the medical profession, he necessarily formed a large circle of friends, now scattered over a wide expanse of country, whose hearts will be saddened by the intelligence that his pure and peaceable spirit has winged its flight to another sphere.

Dr. Short took his degree of Doctor of Medicine in the University of Pennsylvania about the year 1815, and began the practice of his profession in Lexington, Kentucky, not far from the place of his birth. He was, however, soon induced to remove to the Green River section of the State, and settled in Hopkinsville, Christian County, where he was, we believe, as successful as a man of his great modesty and retiring habits could have expected. About the year 1825 or 1826, he was appointed to the Chair of Materia Medica and Medical Botany in Transylvania University at Lexington, Kentucky, which opened up to him a path suited to his scientific and literary taste. The medical school of Lexington was, at that time, in the zenith of its renown, and its halls resounded with the polished elocution of Dr. Charles Caldwell, and the fervid declamation of Dr. Daniel Drake, while Dr. Benjamin Winslow Dudley, also a member of the faculty, was the oracle of Western Surgery.

With such colleagues as these Dr. Short quietly and unostentatiously took his stand, and, relinquishing the practice of medicine, for which he had an antipathy, applied himself with industry and zeal to the study which was ever afterwards the business and the pleasure of his life, namely, botany, which he enriched by frequent and lengthy excursions in search of our indigenous plants. He was at this time one of the editors of the *Transylvania Medical Journal*, to which he contributed many valuable papers, embodying the results of his scientific explorations.

After the disruption of the Transylvania Medical School, Dr. Short accepted his favourite chair, for which he was so pre-eminently qualified, in the University of Louisville, and removed to that city in 1838, one year after the organization of its medical school. Here he was again associated with Drs. Caldwell and Drake and other able collaborators, under whom the school rapidly rose to distinction, and attracted larger classes than had ever before been assembled in the Mississippi Valley.

Dr. Short's connection with the Louisville school continued until 1849, when he resigned his professorship and retired to Hayfield, an elegant and tasteful villa five miles from the city. Previous to his retirement he had, by inheritance and his own industry, become possessed of a fortune, which enabled him to enjoy his *otium cum dignitate*, and to furnish, at the same time, a suitable outfit to his children as they left the paternal mansion, besides responding to the calls of benevolence, both public and private.

No small share of Dr. Short's time, after his retirement to private life, was devoted to the preservation of the dried specimens of plants and flowers, of which he had gathered a large and valuable collection. This was to him a labour of love, and these mute objects of his tender care, embalmed and classified in the herbariums which he has left behind him, long may they be preserved to testify to his patience and gentleness, and skill.

As a lecturer, Dr. Short's style was chaste, concise, and classical, and his manner always grave and dignified. His lectures were always carefully and fully written, and read in the lecture-room with a good voice and correct emphasis. He never made the least attempt at display, nor set a clap-trap in all his life.

As a man, Dr. Short was remarkable for his, we had almost said, fastidious modesty, diffidence, and retiring disposition. This last trait was so strongly marked that a stranger might have deemed him to be an ascetic; but never did a kinder heart beat in human bosom. His heart was indeed always in the right place, and alive to the noblest and most generous impulses. As to his probity, it was as nearly perfect as is possible to fallen humanity. There was never a stain upon his honour, and the breath of calumny never tarnished his name.

H. M.

Died, in Hartford, Connecticut, on the 19th of March, aged sixty-four years, CHARLES HOOKER, M.D., Prof. of Anatomy and Physiology in Medical Institution of Yale College.

In the death of this eminent physician the public of Hartford have met with a great loss. So long had he moved about among them as a physician—a period of forty years—and so active and energetic has he been during all this time in performing the duties of his profession, standing forth as one of the prominent men of this community, that the ties which have bound him to this whole people, in all its grades and classes, are numerous and strong, and now that these ties are suddenly sundered, it is no wonder that the expressions which are upon every one's tongue are—How many will miss him! How great a loss! The events of a physician's life are few, and yet if he be skilful, diligent, and faithful, there is a rich unwritten history left in the hearts of those to whom he has been both the friend and physician in the hours of suffering and bereavement. So it was with our friend. A few lines will suffice to give the main events of his history. He was born in Berlin, in this State, a descendant of that eminent and gifted man who was the leader of the first settlers of Hartford, the Rev. Thomas Hooker. He graduated with honour in Yale College in 1820, in the class of which Pres. Woolsey and Dr. Bacon were members. On graduating, as he afterwards did, from the medical institution of the college, he began practice in this city, and from that time to this he has been known as one of the busiest and most indefatigable men in this community. In 1838 he was appointed to the chair of anatomy and physiology, and the numerous graduates of the medical school can testify to his great skill and energy as a teacher.

The character of Dr. Hooker is not a common one. An independent thinker, his energy prompted him to press his views upon the minds of others, and he therefore made a decided impression upon the principles and practice of his brethren in the profession. No man ever showed more earnestness and assiduity in his calling, and these were just as manifest in his last days, when most men incline to some relaxation of their labours, as they were when the ardour of his youth was upon him. Indeed this ardour never left him, and he never discovered that old age was coming upon him. Faithful and energetic to the last, he exposed himself freely to cold and fatigue, in behalf of some patients in whom he felt a deep interest, even after his sickness had fairly begun, and so he may be said to have died in the very midst of his labours. What we deem to be the grand fact of his professional life, standing out prominent before all others, and written in deep lines upon the hearts of multitudes in this community, is, that he performed his labours for the sick irrespective of reward, for he was just as ready to obey the calls of the poor as those of the rich. The genial and ardent social qualities of Dr. Hooker added much to his influence, and therefore his usefulness, as a physician.

W. H.

INDEX.

A.

Abscesses, iodine injections in, 221
Air-cells, epithelium of, 183
Air-passages, removal of foreign bodies from, 56
Albuminate of iron and soda as a therapeutic agent, 462
Alcohol, is it food? 467
Alkaline lactates and pepsin in indigestion, 495
Almond food as a substitute for bread in diabetes, 138
Amnion, unusual density of, 517
Amputations after battle of Antietam, 44
Anæsthesia caused by diseases of the lungs, 201
Anæsthetics, local, 186
Anderson, eczema of external auditory meatus, 214
Aneurism, popliteal, 216
Angina pectoris caused by tobacco, 205
Anstie, poisoning by morphia, caffeine as an antidote, 520
Antidote to strychnia, 258
Antimonii et potass. tart. cum ol. tiglii in varicose veins, 382
Antiperiodics, new, 463
Antiscorbutic, vinegar as, 267
Apnœa neonatorum, 256
Apoplexy, influence of hypertrophy of heart and diseases of cerebral arteries on, 479
Aran, action and uses of codeia, 184
Areca nut, tænia treated with, 496
Arnold, can pregnancy follow rape, 272
Arsenite of caffeine and tanno-arsenic acid as antiperiodics, 463
Artificial delivery in extremis, 245
Ashhurst, surgical cases, 342
Asthma, review of Salter on, 97
Atrophy, progressive muscular, 136
Atropia, internal administration of, 464
Aveling, vaginal lithotomy, 511

B.

Bader, tumours at base of brain, 127
Balfour, cause of death under chloroform, 257
Ball, new methods of detecting the presence of, in wounds, 499
Barracks and hospitals, review of report of commission for improving sanitary condition of, 112
Beatty, inversion of urinary bladder, 213
Beau, tobacco as a cause of angina pectoris, 205
Bedford's obstetrics, notice of, 430
Beer in therapeutics, 185
Belladonna, poisoning by, 521
Bell, rheumatic endocarditis and pericarditis, 207
Belluzi, artificial delivery in extremis, 245
Bennett, ligation of subclavian artery, 266
Bethune, double vision, 528
Bibliographical notices—
——— Addresses before British Medical Association, 169
——— Bedford's Obstetrics, 430
——— Bourchardat's Annuaire for 1862, 443
——— Bulletin of the New York Academy of Medicine, 423
——— Gay, Primary Treatment of Wounds, 182
——— Habershon on Diseases of Abdomen, 174
——— Holmes, Border Lines of Knowledge, 157
——— Insane Asylum Reports of British American Provinces, 432
——— Jacobi, Dentition and its Derangements, 163
——— Jarvis, Sanitary Condition of U. S. Army, 161
——— Lizars, Use and Abuse of Tobacco, 457
——— Meigs' Obstetrics, 421
——— Paine's Institutes of Medicine, 181
——— Power, Anatomy of Arteries, 178
——— Registration Reports of Vermont, 424
——— Reports of American Institutions for the Insane, 148
——— Storer's Dictionary of the Solubility of Chemical Substances, 430
——— Transactions of State Medical Societies, 139
——— Wilson on Diseases of the Skin, 441
——— Woodward's Hospital Steward's Manual, 182
Bilifulvin and hæmatoidin, identity of, 184
Bill, new method of performing tracheotomy, 63
Birkett, arrest of development of humerus, 136
Births, repeated twin, 251
Bladder, how to relieve pain in diseased, 223
Blake, primary pyæmia, 67
Blood stains, detection of, 258
Bloomingdale Asylum for Insane, notice of report, 153
Body weight, changes of, in women, 254
Boils and carbuncles, subcutaneous treatment of, 222

Bones, urine in diseases of, 508
Bouchardat, diseases produced by bad potable water, 475
Bouchardat's Annuaire, notice of, 443
Bouchut, anæsthesia produced by diseases of lungs, 201
Bowditch, paracentesis thoracis, 17
Brandt, extra-uterine pregnancy, 251
Brewster, characteristics of the age, 524
British American Provinces, notice of Insane Hospital reports, 432
Brittain, repeated twin births, 251
Bromine, formula for solution of, 385
Bronchus, tracheotomy tube in, 220
Bronzed skin cured, 208
Browne, ligation of subclavian, 70
Bruce, retroversion of pregnant uterus, 253
Bryant, arrest of development of humerus, 137
Bryant, diseases of urinary organs, 131
Buchanan, white fibro-serous discharge from thigh, 491
Bullen, iodine injections in ovarian dropsy, 239
Burggraeve, fermentative treatment of disease, 471
Burrows' address, notice of, 169

C.

Cæsarean section after rupture of uterus, 272
Caffeine as an antidote to morphia, 520
Calculus, black, from kidney, 270
Campbell de Morgan, popliteal aneurism, 216
Carbazotate of iron, 188
Carbuncles, subcutaneous treatment of, 222
Carcinoma, abdominal, 263
Carothers, compound comminuted fractures of femur from minie balls, 350
Cataract, inferior section of cornea for, 240
Catheterism of Eustachian tube, dangers of, 224
Cerebellum, physiology and pathology of, 459
Cerebral hemorrhage, 478
Chambers, renewal of life, review of, 387
Characteristics of the age, 524
Chestnut leaves in pertussis, 528
Chipperfield, metallic sutures, 226
Chloroform, cause of death under, 257
Cholesterine and seroline as secretions, 289
Churchill on Hodge's pessary, 254
Citrate of quinia and iron with strychnia, 466
——— of iron and strychnia, 466
——— of iron and zinc, 466
Close, chestnut leaves in pertussis, 528
Closmadeuc, blow on head followed by death two years subsequently, 219
Clubbed fingers in diseases of the chest, 487
Codeia, action and uses of, 184
Coffee, iodized, 190
Colloid cancer, 84
Conjunctivitis, opium in, 243
Connecticut Medical Society, notice of proceedings of, 145
Conservative medicine applied to therapeutics, 22
Consumption, review of Smith on, 91
———————, therapeutics of, 201
Cooper, ophthalmic ointments, 243
———, opium in conjunctivitis, 243
Cornea, inferior section of, for cataract, 240
Corrosive sublimate, antidote to, 336
Corse, intra-uterine hydrocephalus, 81
Cosmao-Dumenez, iodine injections in abscesses, 221
Cotton, action of sesquichloride of iron on, 494
———, therapeutics of consumption, 201
Croup, tracheotomy, 269
Czermak on laryngoscope, notice of, 121

D.

Danilewsky, pancreatic juice, 460
Davies, injury of neck, 79
———, silver wire ligatures, 373
Davy, local anæsthetics, 186
Deafness consequent on rheumatism, 223
Delirium tremens, treatment of, 198
Delioux, deafness consequent on rheumatism, 223
Dentition and its derangements, 163
De Ricci, phloridzine, 188
Diabetes, almond food in, 138
———, causes, &c., of, 494
——— mellitus, effects of diet and drugs on, 492
——— mellitus ending in phthisis, 209
Diabetic urine, means of distinguishing, 210
Dialysis applied to detection of poisons, 520
Dickinson, rupture of heart from violence, 521
Digitalis, action of, 463
Dislocation reduced by manipulation, 75
Dix, wire compress as a substitute for the ligature, 500
Dolbeau, symptom of fracture of base of skull, 504
Dowell, trismus nascentium, 51
Draper, carbazotate of iron, 188
———, citrate of quinia and iron with strychnia, 466
———, syrup of carbonate of iron, 190
Dropsy of ovum, 515

E.

Eberth, epithelium of air-cells, 183
Eczema of external auditory meatus, 214
Electricity, action of, in metamorphosis of organic substances, 460
Electro-galvanism, 191
Embolism, 479
Emphysema, generalized, 488
Engel, direction taken by hernial sac when reduced, 226
———, double inguinal hernia of same side, 226
Ensiform cartilage, dislocation of, 518
Epidemic diseases in Great Britain in 1861 and 1862, 522
Epithelium of air-cells, 183
Erdmann, detection of blood stains, 258
Ether in deafness, 223
Eustachian tube, dangers of catheterism of, 224
Extra-uterine fœtation, 130
——————— pregnancy, 251, 252
——————— ———, fœtus in hernial sac, 252

F.

Fabri, albuminate of iron and soda, 362
———, reunion of intra-capsular fractures of femur, 219
Fallopian tube and ovary, organic connection, 255
Fascia nerve, deep origin of, 183
Favre's method of detecting metallic bodies in wounds, 499
Femur, compound comminuted fractures of, from minie balls, 350
———, fracture of, 218
———, reunion of intra-capsular fractures of, 219
Fergusson on wire compress as substitute for ligature, 502
Fermentation, diseases depending on, 467
Fermentative theory of disease, 471
Fibula, luxation of head of, 385
Fisher, amputations after battle of Antietam, 44
Flemming, internal exhibition of atropia and strychnia, 464
Flint, conservative medicine applied to therapeutics, 22
———, hydro-peritoneum, 306
Food impacted in larynx, 220
Forceps in tedious labour, 246
Foreign bodies in air-passages, 56
Fracture of base of skull, symptoms of, 504
Fraser, statistics of labour, 363
Fremy, malt and beer, 185
French, subcutaneous treatment of boils and carbuncles, 222
Friedberg, imperforate anus, 511
Friends' Asylum for Insane, notice of report of, 151
Fuller, action of digitalis, 463

G.

Gairdner's clinical medicine, review of, 403
Galvanic electricity, 191
Garibaldi's wound, 218
Gassner, changes in body weight in women, 254
Gastinel, arsenite of caffeine and tanno-arsenic acid, 463
Gay, primary treatment of wounds, 182
Gilbert, stone in bladder, 85
Gold dust and iron filings as an antidote to corrosive sublimate, 339
Gosselin, supra-pelvic hematocele, 519
Gouraud, embolism, 479
Great Britain, epidemic disease in 1861 and 1862, 522
Greaves, apnœa neonatorum, 256
Grimsdale, placentæ of triplets, 519
Gull, progressive muscular atrophy, 136
Gunshot wound of chest and abdomen, 380
Guy's Hospital Reports, review of, 125

H.

Habershon, diseases of abdomen, notice of, 174
———, disease of heart, 130
———, on podophyllin, 130
Hæmatoidin and bilifulvin, identity of, 184
Halifax, N. S., notice of report of Lunatic Asylum near, 440
Hamilton, forceps in tedious labour, 246
———, new transfusion apparatus, 248
Hamilton, post partum hemorrhage, 248
Hæmine crystals in different animals, 259
Harley, physiology and pathology of supra-renal capsules, 207
Hart, inferior section of cornea for cataract, 240
Harvey, detection of poisons by dialysis, 520
Haughton, nicotia in tetanus and poisoning by strychnia, 220
Head, blow on, sudden death two years subsequently, 219
Heart, disease of, 130
——— rupture of, from violence, 521
Heller, urine in hydrophobia, 492
Hemorrhage, post-partum, 248
Hernial sac, direction taken when reduced, 226
Hicks, extra-uterine fœtation, 130
———, uterine polypi, 131
Hiffelsheim, permanent voltaic current, 190
Hip-joint, amputation at, for malignant disease, 507
Hjaltelin, typhus in Iceland, 194, 196
Hodge's pessary for retroversion of uterus, 254
Holmead, rupture of uterus, Cæsarean section, 272
Holmes' introductory lecture, notice of, 157
——— Surgery, review of, 408
Hooker, obituary notice of Charles, 536
Horse-hair as a substitute for wire for sutures, 227
House-maid's knee, iodine injections in, 222
Hoyland, recovery after transfixion of thorax by iron bar, 504
Hunt, tetanus and paralysis coexistent, 82
Huseman, epidemic produced by eating diseased meat, 477
Hydrocephalus, intra-uterine, 81
Hydroperitoneum, clinical report on, 306
Hydrophobia, urine in, 492
Hypodermic injections in neuralgia, 87

I.

Iceland, typhus in, 194
Imperforate anus, 511
Inguinal hernia, double, of same side, 226
Inman, is alcohol food? 467
Insane Asylum reports, notices of, 148, 432
Iodine injections in acute abscesses, 221
——— in ovarian dropsy, 239
——— in swelled bursæ patellæ, 222
Iodized coffee, 196
Ireland, action of ozonized air on animals, 462
Iron, action of, on tissue change, 461
———, new preparations of, 188, 190, 466
Irvine, ovarian cyst discharging through vagina, 255

J.

Jacobi, dentition and its derangements, notice of, 163
———, tracheotomy in croup, 269
Jaffe, identity of hæmatoidin and bilifulvin, 184
Jarvis, sanitary condition of U. S. Army, notice of, 161
Johnston, gold dust and iron filings as an antidote to corrosive sublimate, 336

Jolly and Musset, spontaneous generation, 659
Jones, cerebral hemorrhage, 478

K.

Kennedy, typhus and typhoid fevers in Dublin, 192
———, measles from flaxseed meal, 474
———, treatment of typhoid fever, 193
Kidd, ovariotomy in Ireland, 239
———, pessary retained thirteen years, 519
Kidney, black calculus from, 270
Kirkwood, iodine injections in swollen bursa patellæ, 222
Knox, cysts in urinary bladder, 211
Kurzak, tannin as antidote of strychnia, 258

L.

Labour, cause of delay in, 246
———, forceps in tedious, 246
———, statistics of, 363
Lancereau, embolism, 479
Larynx, food impacted in, 220
Laycock, treatment of delirium tremens, 198
Leasure, abdominal carcinoma, 263
Lee, ovariotomy, 232
Leven and Ollivier on cerebellum, 459
Levick, colloid cancer, 84
———, protracted hypodermic injections, 87
Lizars on use and abuse of tobacco, notice of, 457
Longview Asylum for Insane, notice of report of, 155
Lorinser, urine in diseases of bones, 508
Lyell, fermentative treatment of disease, 471

M.

Malt and beer in therapeutics, 185
Mapother, osteo-aneurism, 505
Massachusetts Medical Society, notice of, communications of, 139
———— State Lunatic Hospital, notice of report of, 153
McBride, vinegar as an antiscorbutic, 267
McClintock, diseased placenta, 256
————, dropsy of ovum, 515
McLean Asylum for Insane, notice of report of, 153
Measles from an unusual cause, 474
Meat, epidemic produced by eating diseased, 477
Medico-Chirurgical Transactions, review of, 394
Meigs' Obstetrics, notice of, 421
Melchiori, induration of sterno-cleido-mastoid muscle in infants, 519
Metallic sutures, 226, *id.*
Minie balls, compound comminuted fractures of femur from, 350
Morbus Addisonii, 208
Moxon, enlargement of nerves, 137
Mucous membrane of tongue and mouth, abnormal condition of, 215
Muller, diabetes, 494
———, extra-uterine fœtation, fœtus in hernial sac, 252

N.

Neck, injury of, 79
Necrosis, 232
Nélaton, fibrous tumours of iliac fossa, 231
Nélaton, Garibaldi's wound, 218
Nélaton's probe for detecting metallic bodies in wounds, 499
Neligan, abnormal condition of mucous membrane of tongue and mouth, 215
Nerves, enlargement of, 137
New Brunswick, notice of report of Lunatic Asylum at, 438
New Hampshire Asylum for Insane, notice of report of, 156
New York Academy of Medicine, notice of bulletin of, 423
Nicotia in tetanus and poisoning by strychnia, 220, 496
Nunn, enormous spleen, 489

O.

Oakum as a substitute for lint, 268
Obituary notices, 535, 536
Ointments, ophthalmic, 243
Ollier, metallic sutures, 226
Opium in conjunctivitis, 243
Ord, death during convalescence from typhoid fever from over-eating, 266
Osteo-aneurism, 505
Ovarian cyst discharging through vagina, 255
———— dropsy cured by iodine injections, 239, 376
Ovariotomy, 232, 239, 355, 511
Ovum, dropsy of, 515
Owen, premature delivery, rare presentation, 77
Oxytoxic, tartrate of antimony as, 513
Ozonized air, influence of, on animals, 462

P.

Paget's Address, notice of, 172
Paillon, means of distinguishing diabetic urine, 210
Paine's Institutes of Medicine, notice of, 181
Painless parturition, 244
Pakrowsky, action of iron on tissue change, 461
Panek, organic connection of Fallopian tube with ovary, 255
Pancreatic juice, principles of, 460
Paracentesis thoracis, 17
Parker, tartrate of antimony as an oxytoxic, 513
Parturition, painless, 244
Peaslee, double ovariotomy, 355
Pennsylvania Hospital for Insane, notice of report of, 148
Pessary retained thirteen years, 519
Petrequin, alkaline lactates and pepsin in indigestion, 495
Petroff, carbonate of ammonia in blood in in uræmic poisoning, 210
Phloridzine, 188
Phthisical persons, conditions affecting constitution of, 482
Phthisis, action of sesquichloride of iron on, 494
————, cases of arrest of, 485
Pile, dislocation of shoulder reduced by manipulation, 75
Placenta, diseased, 250
———— of triplets, 519
———— prævia, 78
Pleuritic effusions in relation to thoracentesis, 202

Podophyllin as a purgative, 130
Poisoning by belladonna, 521
——— bitter almonds with iodide of iron, 261
——— morphia, 520, *ibid.*
——— pollen of tiger lily, 271
——— strychnia, morphia, chloroform, &c., 259
Poisons, detection of, by dialysis, 520
Pollen of tiger lily, poisoning by, 271
Polli, diseases depending on morbific fermentation, 467
Popliteal aneurism, rapid spontaneous cure of, 216
Potter, operation for compression of spinal cord, 530
Power, Anatomy of Arteries, notice of, 178
Pregnancy, can it follow rape, 272
Pregnant uterus, retroversion of, 253
Premature delivery with rare presentation, 77
Pyæmia, primary, 67

R.

Radcliffe, epidemic diseases in Great Britain in 1861 and 1862, 522
Rape during sleep, 261
——, can pregnancy follow, 272
Retroversion of pregnant uterus, 253
——— uterus, Hodge's pessary for, 254
Reviews—
——— Chamber's Clinical Lectures on Restorative System of Medicine, 387
——— Gairdner's Clinical Medicine 403
——— Guy's Hospital Reports, 125
——— Holmes' Surgery, 408
——— Medico-Chirurgical Transactions, 394
——— Report of Commission for Improving Sanitary Condition of Barracks and Hospitals, 112
——— Salter on Asthma, 97
——— Selected Monographs of New Sydenham Society, 121
——— Smith on Consumption, 91
Rheumatic pericarditis and endo-carditis, 207
Richardson, luxatior of head of fibula, 385
Roger, generalized emphysema, 488
Rupture of heart attributed to violence, 521
Ruschenberger, oakum as a substitute for lint, 268

S.

Salisbury, cholesterine and seroline as secretions, 289
Salter on Asthma, review of, 97
Sandham, electro-galvanism, 191
Sawyer, unusual density of amnion, 517
Scattergood, active principles of veratrum viride, 529
Schröder, spontaneous generation, 459
Sharpey's Address, notice of, 173
Short, Dr. C. W., obituary notice of, 635
Sidey, cause of delay in labour, 246
Silver wire ligatures, 373
Sim, dislocation of ensiform cartilage during pregnancy, 518
Smart, effect of diet and drugs on diabetes mellitus, 492
Smith, conditions affecting constitution of phthisical persons, 482
——, formula for solution of bromine, 385
——, horse-hair for sutures, 227
——— on consumption, review of, 91
Spence, portion of food impacted in larynx, 222
———, tracheotomy tube in bronchus, 220
Spense, amputation of hip-joint for malignant disease, 507
Spina bifida, sac of removed, 510
Spinal cord, operation for compression of, 530
Spleen, enormous, 489
Spontaneous generation, 459
Stereoscopic theory of vision, 128
Sterno-cleido-mastoid muscle, induration of, 519
Storer's Dictionary of Solubility of Chemical Substances, notice of, 430
Strychnia, internal exhibition of, 464
———, nicotia in poisoning by, 220
———, tannin as antidote to, 258
Subclavian, ligation of, 70, 266
Subcutaneous treatment of boils and carbuncles, 222
Supra-pelvic hematocele, 519
Supra-renal capsules, disease of, 125
———, disease of, without bronzing of skin, 489
———, physiology and pathology of, 207
Surgeon-General U. S. A., circular, 527
———, report, 532
Surgical cases, Ashhurst, 342
Sutures, wire, 226
———, horse-hair, 227
Syphilitic affections of visions, 240
Syrup of carbonate of iron, 190

T.

Tænia treated by areca nut, 496
Tannin, antidote to strychnia, 258
Tartrate of antimony as an oxytoxic, 513
Taylor, bronzed skin, 208
———, placenta prævia, 78
———, syphilitic affections of vision, 240
Tetanus and paralysis, coexistent, 82
———, nicotia in, 220
———, nicotine in traumatic, 496
Thigh, white fibro-serous discharge from, 491
Thomas, ovarian dropsy cured by iodine injections, 376
Thoracentesis in pleuritic effusions, 202
Thorp, encysted tumours, 229
———, paracentesis in pleuritic effusions 202
Tibia, gunshot injury of, 218
Tissue change, action of iron on, 461
Tobacco as a cause of angina pectoris, 205
———, use and abuse of, 457
Toronto, notice of report of Insane Hospital at, 432
Toscani, poisoning by bitter almonds with iodide of iron, 261
Tracheotomy, new method of performing, 63
——— for croup, 269
——— tube in bronchus, 220
Transfusion apparatus, 248

Triquet, dangers of catheterism of Eustachian tube, 224
Trismus nascentium, 51
Trousseau, fermentative theory of disease, 471
———, clubbed fingers, 487
Tschepke, poisoning by strychnia, morphia, chloroform, &c., 259
Tufnell, gunshot injury of tibia, fracture of femur, 218
Tumour at base of brain, 127
Tumours, encysted, 229
———, fibrous, of iliac fossæ, 231
Turner, use of antimonii et pot. tartr. and croton oil in varicose veins, 382
Twin births, repeated, 251
Typhoid fever, treatment of, 193
Typhus and typhoid fevers in Dublin, 192
——— in Iceland, 194
———, disinfecting treatment of, 196
Tyrone, stereoscopic theory of vision, 128

U.

Uræmic poisoning, carbonate of ammonia in blood in, 210
Urinary bladder, cysts in, 211
———, inversion of, 213
Urinary organs, diseases of, 131
Urine in hydrophobia, 492
——— diseases of bones, 508
Uterine polypi, 131
Uterus, rupture of, 272

V.

Vaginal lithotomy, 511
Van Deen, action of electricity in metamorphosis of organic substances, 460
Van der Kolk, atrophy of brain, notice of, 123
Varicose veins, use of antimonii tartras, and ol. tiglii for, 382
Veratrum viride, active principles of, 529
Vermont, registration reports of, notice of, 424
Verruca necrogenica, 213
Vesical calculi, cases of, 85
Vinegar as an antiscorbutic, 267
Vision, affections of, apparently from syphilis, 240
———, stereoscopic theory of, 128
———, double, 528
Voltaic current, permanent, 190
Von Dusch on thrombus in superior longitudinal sinus, notice of, 122
Vulpian, deep origin of facial nerve, 183

W.

Wales, gunshot wound of chest and abdomen, 380
Walshe's Address, notice of, 170
Walter, foreign bodies in air-passages, 56
Water, diseases produced by bad, 475
Western Pennsylvania Asylum for Insane, notice of report of, 152
White, black calculus from kidney, 270
Whooping-cough cured by chestnut leaves, 528
Wilbrand, hæmine crystals in different animals, 259
Wiles, morbus Addisonii, 208
Wilks, disease of supra-renal capsules, 125
———, verruca necrogenica, 213
Willet, diabetes mellitus ending in phthisis, 209
Wilson on diseases of the skin, notice of, 441
———, sac of spina bifida removed by operation, 510
Winterbotham, poisoning by morphia, 520
Wire compress as a substitute for the ligature, 500
Woodward's Hospital Steward's Manual, notice of, 182
Wormald, necrosis, 232
Wyman, poisoning by pollen of tiger lily, 271

Y.

Yeo, ovariotomy, 511

GRADUATES OF JEFFERSON MEDICAL COLLEGE OF PHILADELPHIA, MARCH, 1863.

At a Public Commencement, held on the 10th of March, 1863, the degree of DOCTOR OF MEDICINE was conferred on the following gentlemen by the Hon. EDWARD KING, LL. D., President of the Institution; after which a Valedictory Address to the Graduates was delivered by Prof. WALLACE.

NAME.	STATE OR COUNTRY.	SUBJECT OF THESIS.
Albert, David	Pennsylvania.	Acute Dysentery.
Applegate, Frederick C.	Ohio.	Pustule Maligne.
Barndt, Solomon K.	Pennsylvania.	Fever.
Bauduy, Jerome Keating	Pennsylvania.	Erysipelas as connected with Gunshot Wounds.
Beach, William T.	Pennsylvania.	Fractures.
Boyd, George B.	Pennsylvania.	Report of Hospital Cases.
Boughman, George W.	Delaware.	Anatomy of the Eye.
Bradley, John	Pennsylvania.	Fractures.
Brittain, Richard James	Pennsylvania.	The Requisites and True Aims of an M. D.
Brown, Richard E.	New Jersey.	Chronic Rheumatism.
Cadwell, Joseph W.	Illinois.	Gunshot Wounds.
Campbell, Thomas F.	Pennsylvania.	Puerperal Fever.
Canfield, Ira D., Jr.	Pennsylvania.	Hydrops.
Clark, Vachal M.	Tennessee.	Typhoid Fever.
Carroll, William	Pennsylvania.	Gonorrhœa.
Clarke, George W.	Nova Scotia.	Medical Physiognomy.
Coles, John W.	New Jersey.	Scorbutus.
Coover, Joseph H.	Pennsylvania.	Phrenology.
Corbit, William B.	Delaware.	Hybridism of Diseases.
Crawford, Cornelius C. V. A.	Pennsylvania.	Ovulation the True Sexuality of Woman.
Crosby, James A.	Kentucky.	Typhoid Fever.
Dayton, Samuel W.	Pennsylvania.	Functions of the Spleen.
De Witt, John Wilson	Pennsylvania.	Intermittent Fever.
Donor, William J.	Canada West.	Intermittent Fever.
Dougherty, Matthew C.	Virginia	Typhoid Fever of Mountainous Regions.
Eagleson, David S.	Pennsylvania.	Typhoid Fever.
Etter, D. Frank	Pennsylvania.	Gunshot Wounds.
Fawcett, Charles L.	Ohio.	The Doctor.
Foote, Herschel	Pennsylvania.	Enteric Fever.
Ford, William H.	Pennsylvania.	Gunshot Wounds of the Chest.
Free, Jared	Pennsylvania.	Placenta Prævia.
Gale, John Witten	Ohio.	Sporadic Cholera.
Gerry, James, Jr.	Pennsylvania.	Diphtheria.
Griffith, David S.	Pennsylvania.	Diphtheria.
Handrick, Edgar L.	Pennsylvania.	Pneumonia.
Hays, William L.	Maryland.	Fever the Result of Perversion of Function.
Huff, Isaac	Pennsylvania.	Typhoid Fever.
Huston, John M.	Pennsylvania.	Diphtheria.
Johnson, Charles M.	New York.	Diphtheria.
Kelly, William R.	Ohio.	Hospital Gangrene.
Lehr, George Y.	Pennsylvania.	Dysentery.
Lightner, Samuel B.	Pennsylvania.	Phthisis Pulmonalis.
Loller, William B.	Ohio.	Scarlatina.

NAME.	STATE OR COUNTRY.	SUBJECT OF THESIS.
Longwill, Robert L.	Pennsylvania.	Gunshot Wounds.
Loper, William F.	New Jersey.	Pyæmia.
Mackey, James W.	Pennsylvania.	Rubeola.
Maines, Robert G.	New Jersey.	Dysentery.
Marshall, Robert C.	Pennsylvania.	Opium.
McCandless, Jas. Newton	Pennsylvania.	Scarlet Fever.
McCandless, Josiah G.	Pennsylvania.	Enteric Fever.
McDonough, James	Pennsylvania.	Inflammation.
Miller, Oliver L.	Pennsylvania.	Anatomical Structure of Adam and Eve.
Morrison, John B. G. (M. D.)	Nova Scotia.	Tartar Emetic.
Murphy, Samuel M.	Pennsylvania.	Scarlatina.
Pigott, Charles J.	Pennsylvania.	Enteric Fever.
Pulsifer, Horatio B.	Pennsylvania.	Variola.
Reber, William M.	Pennsylvania.	Typhoid Pneumonia.
Richards, Daniel W.	Pennsylvania.	Inguinal Hernia.
Rittenhouse, George W.	New Jersey.	Inguinal Hernia.
Robinson, Charles	Canada West.	Phthisis.
Sackrider, Charles H. (M. D.)	Michigan.	Extracting Teeth.
Say, Eli J.	Pennsylvania.	Alcoholic Liquors.
Seiler, Robert H.	Pennsylvania.	Gunshot Wounds.
Snively, I. N.	Pennsylvania.	Diphtheria.
Stephenson, Robt. Amasa	Ohio.	Scurvy.
Stewart, William S.	Pennsylvania.	Podophyllin.
Stone, Brinton	Pennsylvania.	Observations on Surgical Injuries.
Stubbs, Charles H.	Pennsylvania.	Acute Rheumatism.
Terry, Henry R.	Pennsylvania.	Dyspepsia.
Townsend, Ellis P.	Pennsylvania.	Variola.
Trumbauer, Henry T.	Pennsylvania.	Acute Pleuritis.
Tuft, Reuben H.	Maryland.	Spasmodic Asthma.
Turnbull, John	Ohio.	Signs of Pregnancy.
Turner, Theophilus H.	New Jersey.	Opium.
Vaill, Charles H.	Connecticut.	Gunshot Wounds.
Way, Walter R.	Pennsylvania.	Camp Fever.
Whitford, Lorenzo D.	Ohio.	Acute Rheumatism.
Wiles, C. Hamer	Ohio.	Inflammation.
Williams, Abraham D.	Ohio.	Dacryocystitis.
Willson, David B.	Pennsylvania.	Humulus Lupulus.
Wilson, Charles P.	Ohio.	Typhoid Fever.
Woods, James M. B.	Canada West.	Influence of Climate on Disease.

Of the above, there are from—

Pennsylvania	49
Ohio	11
New Jersey	6
Canada West	3
Delaware	2
Maryland	2
Nova Scotia	2
Illinois	1
Kentucky	1
Tennessee	1
Virginia	1
New York	1
Michigan	1
Connecticut	1
Total	82